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FELINE DISTEMPER *versus* SPECIFIC FELINE INFECTIOUS ENTERITIS

HAMILTON KIRK, M.R.C.V.S.

A most interesting address upon feline distemper was presented before the Comparative Section of the Royal Society of Medicine on Wednesday, October 26th. Dr. E. Hindle, who addressed the meeting, had for many months been conducting a bacteriological investigation into the etiology of cat distemper, and to him and his co-worker, Dr. Findlay, the veterinary profession owes a debt of gratitude. Indeed, we should be grateful to anybody who, being a trained pathologist, would spare the time and energy for researches into feline diseases. Diseases of the domestic cat are not considered to be matters of national or economic importance, but we know they certainly are a source of great loss to the cat-breeding community, no less than to the huge cat-owning and cat-loving public.

Dr. Hindle published his work in the January issue of the *Journal of Comparative Pathology and Therapeutics*, of which work the following is an extract:—" The clinical symptoms of this disease were found to be so variable as to offer no certain method of clinical diagnosis, but pathologically there is constantly present some degree of congestion of the alimentary canal. This congestion is usually restricted to the small intestine, sometimes to only a short length of it, but in other cases it may extend along the whole length of the small intestine, the stomach and even the œsophagus. Enlargement and congestion of the abdominal lymph glands are generally observed and in addition enlargement of the spleen, broncho-pneumonia, pleurisy and peritonitis may occur."

The symptoms described in the above extract may be accepted (all, or in part) as those which may be encountered in a genuine case of cat distemper, but no mention was made of the symptoms which are so commonly present in that disease, *viz.*, coryza, rhinitis, sneezing, and salivation. On the other hand, importance seemed to be attached to the intestinal lesions. The significance of these facts will presently be shown.

Dr. Hindle, at the inception of his investigation, took the precaution to visit a number of selected veterinary practitioners, cat breeders, the Zoological Gardens, and other persons and establishments from whom he endeavoured to obtain clinical information and material upon which to work. He and his colleague honoured me with a visit, but my recollection is that we discussed no disease other than feline enteritis. The word " distemper " was not mentioned.

I attended the meeting of the Royal Society of Medicine fully expecting to hear a discourse upon enteritis, but to my dismay the paper concerned feline distemper. It at once occurred to me to enquire whether Dr. Hindle might possibly be confusing the two diseases, in reply to which enquiry he quite frankly stated that the moribund cats and other material sent to him had been described as distemper subjects by their senders.

This matter seemed to me to be one of considerable importance in view of the well-known confusion which exists to-day in the minds of most veterinarians and cat-breeders alike, as regards the distinction—if any—between distemper and enteritis.

Both clients and colleagues speak of " cat plague," " show fever," " cat sickness," etc.—terms which leave one entirely guessing as to which disease is indicated. Such chaos should not exist, and it is really time that an authoritative statement was issued laying down the broad lines of distinction between the two maladies. One speaker at the meeting deplored the fact that clinicians engaged in small animal practice had not yet decided among themselves what were the salient differences, and had not informed the laboratory workers to how many infectious diseases the domestic cat was susceptible.

I, personally, have done my small part in this direction by enumerating and describing these diseases in my publication " Diseases of the Cat." It is my firm belief that specific infectious feline enteritis is a definite and distinct disease of the domestic cat and, whilst I have an open mind on the subject, I have not as yet heard a single argument which has led me to deviate from this view. Another speaker at the meeting expressed the opinion that what some regarded as specific enteritis was merely a different phase of distemper or another type of that disease. If this argument were supported by facts, one could accept it; but upon what grounds are we entitled to make such an assumption when in neither condition can a definite causal organism be isolated and cultivated? In each disease one may observe distinct and absolutely typical symptoms, therefore I see no

ground for the supposition that one is a part of the other. On the contrary, a number of investigators who recognised and worked upon the etiology of feline enteritis, came to conclusions which differed materially from that which Dr. Hindle arrived at in his investigation of feline distemper.

Boucek, in 1910, investigated an epizoötic of cats which was characterised by very similar symptoms to those which some of us recognise as pertaining to epizoötic enteritis. He obtained pure cultures from blood smears of an ovoid, bi-polar, Gram-negative, motile organism, which he considered was a member of the septicæmia hæmorrhagica group. It was very pathogenic to cats but did not appear in other animals. Zschokke described some outbreaks of disease among cats, which he called croupous enteritis, and which he asserted was due to a virulent type of *Bac. coli*. Phisalix also made similar observations. Skrzynski, in 1908, described an organism closely allied to *Bac. coli*, which was specific for cats, but did not affect mice, rats, guinea-pigs, or rabbits. It was Gram-negative, and non-motile, though possessing marked Brownian movement; stained with ordinary dyes; non-sporulating; did not liquefy gelatine; coagulated milk in 24 hours with a strong acid reaction; produced indol, and fermented mannite but not saccharose, etc., etc. Broth cultures added to the food of cats produced the disease and destroyed the animals in anything from 24 hours to 20 days, according to the age of the cat. The organisms were recovered in each case.

However, in the light of more recent investigations (the results of which were published in 1920 by Milks and Goldberg of the New York State Veterinary College at Cornell University), it would seem clear that a coliform organism is, in fact, the causal agent of this feline disease. These observers followed up the work of the earlier-named gentlemen and verified it in almost every particular. The following abstracts are culled from their report (*vide Veterinary News*, September 4th, 1920).

"The organism under discussion differs slightly from *B. coli* in motility, in its growth at low temperature, in not fermenting saccharose, and in being specific for cats. The organisms recovered from the outbreaks of 1914, 1916, and 1919 are apparently similar to the one described by Skrzynski. The latter organism also did not ferment saccharose, and is specific for cats. It is, however, slightly motile. Immunity was conferred on animals that resisted single subcutaneous or intra-peritoneal injections of broth culture . . . . The serum of a prepared animal possesses preventive and curative properties."

Now, Dr. Hindle tells us that he identified numerous organisms from cats suffering with distemper, but he regarded them as secondary to the entry of an ultra-visible virus, and responsible for the various secondary symptoms and lesions manifested by that disease. My contention upon that statement is that when dealing with specific feline enteritis we do not encounter these secondary symptoms. The syndrome is characteristic and almost constant, *viz.*, refusal to feed, great depression, frequent vomition, normal or only slightly elevated temperature, which later becomes sub-normal; uneasiness or pain upon manipulation of the abdomen; constipation at first, followed only rarely by diarrhœa; animal dazed and motionless; skin inelastic; mouth, ears and legs cold; sometimes salivation and in some cases an increased thirst, the ingestion of water being followed by emesis. Death supervenes in about 80 per cent. of cases, and occurs usually within 48 hours. *Post-mortem* examination on rare occasions may give little or no clue, though generally there is a localised inflammation of the jejunum or ileum ***and nothing else.*** The mucous lining may show a croupous or flaky exudate in about 50 per cent. of cases. The serous coat is markedly congested, and bile pigment is occasionally abundantly distributed throughout the intestinal tract, and all tissues adjacent to the gall bladder may in those instances be unduly stained with bile even an hour or so after death. In some cases there is an additional swelling of the mesenteric glands and congestion of the liver and kidneys.

Contrast such a train of symptoms with those usually observed in distemper, such as:—acute conjunctivitis, rhinitis, sneezing, diarrhœa, salivation, stomatitis, and perhaps bronchitis, tracheitis or even pneumonia. It is a different picture, and whilst enteritis may appear along with the aforementioned, it is difficult to believe that when it appears entirely alone, it is necessarily part of the same disease, having a similar etiology.

I have known feline enteritis to go through cattery after cattery with never a variation in the clinical symptoms and with never a sign suggestive of distemper. The estimated mortality of 80 per cent. contrasts strongly with the approximate 25 per cent. of fatalities seen in distemper. Feline enteritis has been known to attack long-term boarders which have never had direct contact with any other cat, and the indirect contact in some instances has been only with healthy cats which at no time exhibited disease.

I have attributed the cause of this to flies. Through a number of years it has been noticeable that when the fly pest abated, the enteritis cases similarly diminished. Flies are the most ready and certain means of causing a serious outbreak of the disease because they may first settle on the fæces of a cat which is in the

incubative period, and then alight on the food of another susceptible cat. Experience, too, has taught me that in order to board cats successfully, they must be housed in the open air and not in buildings. If this cannot be arranged, then the buildings must be large, light and airy, and each cat should have its own window opening to the exterior, wired-in exercising runs being available.

The Problem of the Poor Animal Owner

N.V.M.A. PRESIDENT AT CAMDEN TOWN MEETING

Success of the Joint Scheme

The interests of the important scheme for the provision of professional treatment for the sick animals of poor persons, which is being operated jointly by the National Veterinary Medical Association of Great Britain and Ireland and the Royal Society for the Prevention of Cruelty to Animals, were well served by addresses on the subject of "The Problem of the Poor Animal Owner" given by Lieut.-Colonel P. J. Simpson, President, N.V.M.A., and Captain Fergus MacCunn, Assistant Secretary, R.S.P.C.A., at a meeting held in the large Lecture Theatre at the Royal Veterinary College on Thursday of last week, under the auspices of The University of London Animal Welfare Society.

The aims and scope of the scheme, together with the relative rôles of the N.V.M.A. and R.S.P.C.A. in connection therewith, have been detailed in the *Record* as the plans for its operation have matured and have been carried into effect—with such rapidity as local circumstances have permitted; accordingly, we summarise the addresses, but would comment that the meeting admirably achieved its primary purpose of stimulating the interest of the Graduate-to-be.

Sir Frederick Hobday, who presided over a large assembly, in introducing the speakers, said that there could be no dissent from the statement that the animals of the poor had an equal right to those of the rich to proper treatment when they were sick, and that meant that diagnosis should be made and treatment given by the only man who was qualified for the task—the veterinary surgeon. Schemes had been put forward and had been in operation for the past two or more years whereby the animals of poor owners could receive treatment, either free or for a nominal charge, at the hands of qualified men, with the result that it could now be said that the small-animal owner had no excuse for putting his sick pet into untrained hands.

Colonel Simpson, as President of the National Veterinary Medical Association, was largely responsible for the general arrangements which had been made with the R.S.P.C.A. in connection with the free treatment scheme. This was of a two-fold nature, embodying, on the one hand, the establishment of central clinics and, on the other, that of a decentralised system (necessitated in rural districts) under which free treatment was obtainable at the surgeon's premises.

Lieut.-Colonel P. J. Simpson, D.S.O., J.P., F.R.C.V.S., expressed his appreciation of the honour The University of London Animal Welfare Society had paid the National Veterinary Medical Association of Great Britain and Ireland in asking him, as its President, to address them on "The Problem of the Poor Animal Owner." In the last twenty years the small-animal population had grown enormously and, as pets, they were found in the humblest of homes, where devotion was lavished upon them. Despite the spate of information—good and bad—in the dog and cat papers and daily Press, there was still a vast amount of woeful ignorance as to the care of animals in health—not to speak of first-aid in sickness and accident, and in the absence of knowledge by poor persons of the fact that they could call upon the good nature of veterinary surgeons, that might mean the ignorant infliction of much unnecessary pain.

He took it that he was addressing an audience composed very largely of veterinary surgeons and those who hoped to become veterinary surgeons, and both as veterinarians and as humanitarians it was for them, collectively and individually, to try and help the pets of the poor owner, not only by advice and treatment in sickness, but by doing their best to disseminate knowledge of the care and management of animals in health. There were many ways in which this could be done without the veterinary surgeon concerned infringing the bye-laws of the Royal College—by lectures to clubs, etc., and by assisting in the educational work carried out by that Society, by the R.S.P.C.A. and other bodies.

It was with the provision of treatment by qualified persons, however, that the N.V.M.A. was most concerned at the moment. Under the impression that the treatment thereby provided was professional, people subscribed many thousands of pounds to Associations and Societies which blatantly advertised themselves as able to furnish competent treatment for every type of animal ailment. It was, in some respects, unfortunate that members of the profession were unable to advertise the fact that they were willing to give free advice and treatment to the genuinely poor.

Colonel Simpson now detailed the provisions of the N.V.M.A. Centralised and Decentralised Schemes, and pleaded that all members, both of the profession and of the R.S.P.C.A., should approach the matter solely from the point of

view of the necessity for the relief of animal suffering: there should, in the prosecution of such schemes, be no place for antipathy. From reports received from north, south, east and west it was evident—and this must be a matter of much gratification to all concerned—that harmony prevailed, not only between the members of the profession and the R.S.P.C.A., but between veterinarians themselves, in connection with the working of the scheme. He thought that the N.V.M.A., through its Branches and Divisions, could claim to have done much to bring about that happy state of affairs. (Applause.).

Here the speaker interpolated an appeal to those about to qualify to join the "National" as soon as they had obtained their diploma. They should then attend Divisional meetings and by so doing increase their professional knowledge and, at the same time, get to know their professional brethren and find what a lot of good fellows—and women—they were.

Colonel Simpson proceeded to stress the fact that service devoted to whichever form of scheme was agreed upon must be looked upon as purely voluntary effort to relieve the sufferings of our dumb friends; moreover, the schemes must be run as economically as possible if success were to be achieved. Extensive advertisement was also essential, and in this connection the N.V.M.A. had adopted a course of from time to time inserting in local papers (in which unqualified advertisers had so worded their announcements as to mislead the public into thinking that they were qualified) a counter-advertisement pointing out that a veterinary surgeon can always be known by the letters M. (or F.) R.C.V.S. after his name, and that no-one, unless he holds the diploma of the R.C.V.S., can use those letters or any title that would lead the layman to think he is a veterinary surgeon.

The speaker concluded by paying tribute to the value of the wonderful free clinics attached to the Royal Veterinary and other Colleges, of that run by the Dumb Friends' League, and others supervised by veterinary surgeons; also to the splendid voluntary work accomplished by members of the profession: the thanks of the N.V.M.A. were however, due to that Society for having afforded him the opportunity of telling them what the "National," on its part, was doing to help solve the problem of the poor animal owner. (Applause.).

Captain Fergus MacCunn commenced by making reference to the fact that, had his Society been somewhat more wide awake, and had the veterinary profession possessed rather more foresight, in the past, the effort in which they were now united would have been entered upon many years earlier.

Continuing, Captain MacCunn outlined the various methods by which the R.S.P.C.A. set out to help the poor animal owner, by far the most interesting to him being that in which they were associated with the President of the N.V.M.A. in working out schemes which would turn what had hitherto been local activities into a national one. He endorsed fully all that the President had said on the question of providing qualified diagnosis and treatment: he was sure that the British public, with their traditional and indeed inherent love of animals, would never, if the choice were put to them, elect to go to a "quack" in preference to a qualified man, to save their pockets, if it could possibly be avoided—and the first object of that scheme was to enable them to avoid doing so.

The R.S.P.C.A. naturally preferred the Centralised Dispensary to the Decentralised System. Not only could the former be advertised more readily, but it provided a place where the poor animal owner could always find qualified treatment during certain hours. In London they now had eight dispensaries, at which 67,000 animals were treated last year.

The Decentralised System, however, had to be adopted in rural districts, where it would not be an economic proposition to run dispensaries. He was somewhat surprised that some veterinary surgeons in certain towns insisted on that system being adopted there, and he very much hoped that these gentlemen would change their minds.

Turning to difficulties, the problem of the mean man who went to a dispensary when he could afford to pay the veterinary surgeon's full fee was one that had featured largely in discussion, but he would remind them that it was not the veterinary surgeon who was the loser in such cases, and in any event such a person, if refused treatment at the dispensary, would either go to a "quack" or leave his unfortunate animal untreated.

The question of major operations was one for mutual adjustment, and in the far more difficult one of after-treatment each case had to be dealt with by due consideration of all the circumstances.

Captain MacCunn, in dealing with the delicate question of financial arrangements as between the veterinary surgeon and the local Branches of his organisation, observed that, as a profession, we did not appear quite to understand the constitution of his Society in regard to finance. In that matter Branches were autonomous: there was no question of the central organisation allocating an enormous sum for the functioning of the dispensaries, and they must remember, in complaining perhaps, of a grant of, say, £20 from the funds of a local Branch, that each Branch had to shoulder its own responsibilities in this matter and that some of them were the

reverse of affluent, especially those in poor areas.

The speaker concluded by saying that he personally regarded the institution of this scheme as one of the greatest pieces of work that was being done at the present moment for animals, and it was going to develop enormously if only their Society and our great profession would tackle any of the difficulties which were bound to arise from time to time, in a spirit of mutual helpfulness, to find an amicable solution. He need not say how much he appreciated the great help they had received in the past, and were now receiving, from the Association's indefatigable President and from their distinguished Chairman, Sir Frederick Hobday. (Applause.).

Following a mutually-helpful discussion, the meeting terminated with the according of a hearty vote of thanks to Colonel Simpson and Captain MacCunn, on the proposition of Major-General Sir John Moore.

TRIBUTE TO CORK VETERINARY STAFF.

At a meeting of the Corporation of Cork, at which the Mayor presided, correspondence was read from the Departments of Agriculture and Local Government, suggesting the continuance for a further period of twelve months, from the 1st March, of the appointments of the Chief Veterinary Inspector, Mr. J. J. Dundon, and his four assistants, Messrs. Hartnett, Crowne, Nolan and McDonnell for the supervision of the meat and milk supplies in the city, under the Fresh Meat Acts, 1930 and 1931, and the Public Health Acts. The salaries would be on the existing basis, four to be paid by the Department and one by the Corporation.

Alderman Brouder said that Mr. Dundon and his staff were doing their work to the satisfaction of the Council and citizens, and he proposed that their services be continued for a further term of 12 months.

Mr. Goodwin seconded the motion.

The Mayor: Certainly the work done by the veterinary staff is a great asset to the citizens, who are now assured of a wholesome good supply. We are now getting first-class supplies of meat and milk, and we cannot do better than continue the services of the staff.

The motion was agreed to.

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PEOPLE'S LEAGUE OF HEALTH LECTURES.

Sir Frederick Hobday, taking as his subject, "Veterinary Science and the Nation's Health," will deliver at 6 p.m. on Monday, April 10th, the concluding lecture of the twelfth annual series of the Sims Woodhead Memorial Lectures now being given under the auspices of the People's League of Health at Hamilton House, Mabledon Place, W.C.1.

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A society has been formed at Wooler, Northampton, with Sir Archibald White as chairman, to serve the interests of light horse breeders in North Northumberland in connection with stallion premiums, seeing that the Government has decided not to restore the grants.

The Veterinary Record

February 25th, 1933.

A CALL TO ACTION

THE profession will learn with gratification that in many areas marked success has attended the effort to establish a working agreement between the practitioner, as represented by Divisions of the N.V.M.A., and local Branches of the R.S.P.C.A. for the purpose of substituting for the ignorant ministrations of the unqualified, a well-organised professional service for the treatment of the sick animals of poor persons.

As is recorded elsewhere in this issue, public evidence of this gratifying accomplishment was forthcoming on the occasion of the first appearance on a common platform of leading representatives of both parties to the arrangement in the persons of the President of the N.V.M.A. and the Assistant Secretary of the R.S.P.C.A.

It was obvious from the outset that in the institution of a scheme of free treatment involving a complexity of factors, differences of opinion as to the most effective form of *modus operandi* were bound to arise, and both the N.V.M.A. and the R.S.P.C.A. are indebted to the Principal of the Royal Veterinary College and the University of London Animal Welfare Society, for providing so eminently suitable a venue and opportunity for their frank discussion. The summaries of the addresses delivered by Colonel Simpson and Captain Fergus MacCunn will be read with interest and, as we are confident, much profit by all concerned in the great enterprise to which the respective organisations they represent have set their hand, and which has already prompted the commencement of operations up and down the country.

For our part, we feel that by such a discussion at this stage—when past achievement is such as to ensure ultimate success, and when the only limit to the development of the scheme is the measure of co-operation accorded by members of the profession—a more than useful purpose has been served. The outstanding danger to the completely successful fulfilment of any great design is that it should be obscured by a cloud of side issues, and it was of inestimable benefit that the essential motive of the movement should have been set forth in unequivocable terms—the scheme is based on voluntary service, and any question at issue must be viewed primarily in its relation to the welfare of the sick animals of poor persons. The President's

insistence in this regard was an invaluable contribution at this time.

Captain Fergus MacCunn, too, did much to ensure the future harmonious working of the scheme by dealing with a wholly commendable frankness, with some of the difficulties which, in some instances, have attended the establishment of clinics. We are convinced that there is no element of difficulty inherent in either the Centralised or the Decentralised Scheme that is not readily capable of elimination, provided there is exercised a sympathetic adjustment of outlook and action in conformity with the needs of the local situation, and with the primary object of the effort kept continuously in the foreground.

Few will be prepared to cavil at the confession that had the R.S.P.C.A. been more wide awake and had the profession possessed more foresight in earlier days, some such scheme as this would have been in full working order long ago. To our mind, it is an unanswerable indictment in the light of the recent mammoth development of agencies for the furtherance of quackery in small animal treatment. Large scale effort had become an imperative matter, if the needs of the situation were to be met, and for this reason alone the President's tribute to the part played by the Association in this regard will be widely endorsed. Let any member who as yet has withheld his co-operation, respond forthwith to the President's call to action.

SWINE FEVER POLICY

When the General Council of the Institute of Auctioneers in Scotland recently passed a resolution requesting that compensation should be payable in cases of swine fever, as in the case of animals slaughtered for foot-and-mouth disease, they sought the support of the N.F.U. of England for the proposal.

The Secretary of the National Farmers' Union has now replied to the Council. He points out that in the case of foot-and-mouth disease the Ministry slaughter all the stock affected, and payment is made for these animals; in the case of swine fever the Ministry only slaughter such animals as it is necessary to use for diagnostic purposes.

Last year in 1,555 outbreaks 757 animals affected with swine fever were slaughtered, and compensation was paid in respect of these animals. In order to pay compensation for all the animals affected in outbreaks of swine fever, it would be necessary for the Ministry to resume the "slaughter" policy in the case of swine fever. This policy was given a prolonged trial from 1893 until the outbreak of the war, but the Ministry state that it did not prove in practice to be effective in achieving eradication of the disease, whilst it involved a very high expenditure of public funds. In view of the national economy measures, it was not considered advisable to press for further compensation to be paid.

Clinical Communication

THE OBLITERATION OF BURSÆ

J. J. DAVIES, M.R.C.V.S.,
West Ham

Reading in medical literature of the beneficial results obtained by injections of sodium morrhuate as a sclerosing agent for obliterating bursæ, varicocele, etc., it was decided to try its effect on similar conditions occurring in the dog.

Sodium morrhuate in 5 per cent. solution was used in all cases.

The method of procedure is straightforward—the sac is evacuated by means of a small trocar the cannula or by means of a needle attached to an aspirating syringe. After withdrawing the fluid the cannula or needle is left in position and an equivalent amount of solution injected. The sac is afterwards lightly massaged.

Case 1.—A greyhound suffering from an enlarged superficial bursa at the point of the hock. The bursa was roughly the size of a walnut, painful, and interfering with the mobility of the joint.

The fluid was replaced with 3 c.cs of solution.

Result.—The following day the bursa and the tissues around were considerably swollen and painful. This disappeared, however, in 2-3 days. In 10 days the bursal sac was completely dispersed.

Case 2.—A greyhound with a swollen bursa at the point of the elbow. Five c.cs. of solution injected.

The result resembled the previous case in every respect.

Case 3.—A greyhound, three years old, with an extensive mucoid cyst situated superficially between the angles of the mandible.

The contents of cyst, amounting to 30 c.cs, were aspirated and replaced with 10 c.cs. solution.

Result.—The cyst enlarged to about twice its original volume, but gradually receded practically to its original size.

The operation was repeated with similar unsatisfactory results. Eventually the cyst had to be removed by surgical means.

Conclusion. — Though the number of cases treated is very limited, the employment of sodium morrhuate solution for the dispersion of bursæ is encouraging and worthy of further trial.

ARMY VETERINARY SERVICE

Promotion Examination

Major R. G. C. Thwaytes and Capt. J. S. Kingston, the Royal Army Veterinary Corps, were successful candidates in the examination (in written subjects) of officers with a view to promotion in the Regular Army, which was held in India and Burma in October last.

Abstracts

[Bacteriological Studies on Feline Distemper. Hindle, E., and Findlay, G. M. 1933. *Proc. Roy. Soc. Med. 26.* 3, 197-202. Refs. 16. Discussion by the Section of Comparative Medicine, October 26th, 1932.]

Dr. E. Hindle and Dr. G. M. Findlay, during the course of their investigations on the ætiology of feline distemper, made bacteriological examinations on 300 cats, the subjects of this disease, this number including both spontaneous infections and cases which had suffered from infections produced experimentally in the course of the enquiry.

Cultures were made from heart blood, spleen, abdominal lymph glands, lung and the lower end of the trachea, and also from the thymus and cervical lymph glands where these showed any naked-eye evidence of enlargement or vascular engorgement. As a rule, ærobic cultures only were made; in 15 cases, however, anærobic cultivation was also practised, but as these cultures almost invariably remained sterile and did not show the presence of any constant organism, this line of investigation was not further pursued.

In 24 cases (8 per cent.) all the culture tubes remained sterile; in the other 276 some evidence of bacteriological infection was obtained, but in 15 cases only in the mesenteric lymph glands, and in eight cases only in the lungs. In 165 cases the heart blood contained bacteria. No attempt was made to study exhaustively the great variety of bacteria met with, but these included:—

(*a*) A strain of *Salmonella,* showing affinities with *Bact. typhimurium,* found in 50 per cent. of the affected cats.

(*b*) Various strains of *Pasteurella,* found in only 13 cats out of the 300 examined.

(*c*) Hæmolytic streptococci, generally growing in short chains, found in 37 per cent. of the affected cats. These showed varying degrees of pathogenicity in mice, but were non-pathogenic in cats.

(*d*) Para-influenza bacilli, referred to as *Hæmophilus felis,* isolated seven times from the nasopharynx and twice from the lungs. The sera of ten cats which had recovered from distemper were tested against two strains of this organism, but only one was agglutinating, *viz.,* in a dilution of 1 in 20.

(*e*) *B. bronchisepticus,* isolated fifteen times from the trachea and lungs of infected cats.

(*f*) *Bact. coli,* isolated in seven cases.

(*g*) Streptothrix and staphylococci, isolated occasionally from cases showing advanced secondary infections.

After commenting that almost all the above groups of organisms have already been described, either as the cause of epidemics among cats or as occurring in normal cats, the authors proceed to give brief notes (historical, and concerning location, cultural characteristics, reactions, etc.) on certain of the bacteria isolated.

Such was the variability of the clinical symptoms that no certain method of clinical diagnosis could be offered, but the most constant and also the earliest pathological lesion was congestion of the vessels in the submucosa of the small intestine. In some cases, however, this congestion might extend along the whole length of the small intestine, the stomach and even the œsophagus. There was generally to be observed enlargement and congestion of the abdominal lymph glands, and, in addition, enlargement of the spleen, bronchopneumonia, pleurisy and peritonitis might occur.

The results of this investigation are in accord with the authors' view, also supported by experimental evidence, that the primary cause of feline distemper is a filterable virus, the changes produced thereby (especially the congestion of the small intestine) favouring the invasion of organisms from the alimentary tract—an expectation which was supported by the results of bacteriological examination. The large variety of bacteria isolated also supports the view that none of them is ætiologically related to the disease.

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In the discussion which followed, Colonel A. E. Hamerton said that the disease had been known for over thirty years in the London Zoological Gardens as a distinct clinical entity, affecting mostly the smaller wild felines. There had been much speculation as to its course, until Dr. Hindle and Dr. Findlay undertook its investigation and demonstrated the real ætiology of this most destructive disease. The zoological distribution of the disease was limited to the genus *Felis,* but there were many species, *e.g.,* the lion, the tiger, the jaguar and the puma, that appeared to have a natural immunity.

Major Hamilton Kirk questioned the accuracy of the suggestion (implied in the recital of symptoms) that enteritis, as commonly seen in domestic cats, was merely a type of distemper. In his view, there was a vast and definite difference between the clinical pictures exhibited by cats suffering from abdominal distemper and those of cats attacked by specific enteritis. Certainly there was much confusion regarding the conditions referred to as "cat fever," "show fever," "cat plague," and so on. Several laboratory workers had, in recent years, recognised specific enteritis as a separate entity.

Mr. Henry Gray, while agreeing with Dr. Hindle's account of the clinical and pathological features, cited the "infectious enteritis" which usually occurred as an enzoötic in kittens, as a complaint likely to be mistaken for the gastro-enteric form of cat distemper. This differed from distemper in the rapidity of its course, causing mortality within thirty-six hours. Some

female cats acted as carriers of distemper, and in each succeeding litter which they produced the disease developed within a week or so.

Prof. J. G. Wright observed that the fact that a rise in temperature was not an invariable symptom made clinical diagnosis difficult, but the history of the cases was fairly constant—namely, malaise for a period of forty-eight hours or so, inappetence and intense dullness, associated with a marked loss of subcutaneous fat. As in the case of dog distemper, the mortality rate was much higher in immature animals than in adults, but, in contradistinction to dog distemper virus, that of feline distemper appeared to have no neurotropic tendencies. In his view, transmission by fomites was a common means of spread in boarding establishments.

It was generally accepted that drugs were of little or no value in treatment, though quinine sulphate was extensively employed. He had had some little success from the subcutaneous injection of a 5 per cent. glucose solution in normal saline.

Professor G. H. Wooldridge had long held cat distemper to be due to a filterable virus, and Dr. Hindle's ability to provide experimental proof was gratifying to him. On the grounds of clinical experience, he regarded the various complications, such as pneumonia and enteritis, as being due to secondary invaders, which, under certain circumstances, were capable by themselves of producing pneumonia and enteritis respectively, in the absence of true cat distemper. He considered that this was the explanation of those outbreaks of acute enteritis without distemper to which Major Kirk had referred.

The possibility of immunisation on practical lines was now imminent, and this would be of very great assistance clinically.

W. B.

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[Experimental Tests of the Immunising Power of B C G Vaccine. (Trans. title.) Hedström, H. (1932). *Skand. Vet.-tidskr.* 22. 570-588. 6 tables. ([Summary in English.)]

The author, a member of the staff of the State Veterinary Bacteriological Institute, Stockholm, describes experiments with B C G vaccine to test:—

(1) Its virulence when injected into guinea-pigs.

(2) The protection bestowed upon (*a*) guinea-pigs, and (*b*) cattle, against subsequent infection with bovine tubercle bacilli.

A third experiment was carried out with 'Thanatophthisin"—a German preparation said to protect cattle against tuberculosis.

In the first group of experiments 24 guinea-pigs received intra-muscular injections of emulsions of the vaccine; the animals were *post-mortemed* at intervals of from two weeks to one year afterwards. Three of them, one of which died from a diplococcal infection, showed tuberculous lesions. From the nature and distribution of the lesions and observations at the time of inoculation, the author concludes that if the B C G vaccine is not absolutely innocuous when injected into guinea-pigs its virulence is so slight as to be of no practical importance.

Group 2 experiments consisted in the vaccination of 25 guinea-pigs with B C G subcutaneously, followed at intervals of from four to eight weeks with a similar injection of bovine tubercle bacilli of known virulence for rabbits and cattle.

The unvaccinated controls survived for an average period of 51 days, whilst the vaccinated animals lived for 140-148 days. Those which were infected five weeks after vaccination possessed the highest and those infected six weeks after, the lowest, powers of resistance. The writer concludes that "vaccination with B C G vaccine bestows upon the guinea-pig a definite immunity against a subsequent infection with tubercle bacilli. The immunity is maximal five weeks after vaccination and persists for more than two months."

Similar experiments were now carried out on four cattle about 10 months old, purchased from a tuberculosis-free farm and negative to the intradermal tuberculin test.

[Only one injection of tuberculin appears to have been given and measurements recorded at 24th, 48th and 72nd hours.—Abs.]

Two cattle received a subcutaneous injection of 15 c.c. of a 0·1 per cent. by volume suspension of B C G vaccine prepared from a 16-day-old bouillon culture. Nine weeks later the four cattle were tested by the intradermal method, one injection only being indicated in the original article. The two vaccinated cattle, which reacted, showed the following measurements (mm.):—

Initial.	24 hours.	48 hours.	72 hours.
8	26	19	17
7·5	29	24	20

Ten weeks after vaccination all the cattle were injected intravenously with a culture of the virulent bovine tubercle bacilli used in the experiments on the guinea-pigs. The vaccinated animals survived for an average period of 69 days and the controls for an average period of 36 days. The cause of death in each case was generalised tuberculosis. The *post-mortem* findings are recorded in detail. The author concludes that "The B C G vaccine, consequently, is able to increase the power of resistance of cattle against a subsequent infection with tubercle bacilli."

A subsidiary experiment was carried out concurrently. Two cattle purchased and housed under the same conditions as the "B C G

cattle" were subjected to the same experiments as these, except that instead of B C G vaccine each received an injection of "Thanatophthisin." They survived for a period of 32 days after infection.

G. B. B.

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[A Method of Immunisation against Foot-and-Mouth Disease. Lignières, J. *Bulletin de l'Académie Vétérinaire de France.*. Tome v. No. 9. pp. 372-376. November, 1932.]

This article is a brief resumé of several communications made by Professor Lignières to the Academy of Sciences and the Biological Society during 1932. Experiments in immunisation against swine fever, distemper in dogs, as well as foot-and-mouth disease have been carried out, with more or less favourable results. Theoretically, this method (described below) as applied to filtrable virus diseases, is explained as follows:—a limited zone or area of skin is immunised by injection of diluted specific serum and virus simultaneously. Thus, virus is allowed to proliferate locally, setting up immunising reactions in the tissues and body fluids without at the same time generalising the disease, and thereby a definite and lasting resistance is obtained. The serum must not be given in too great quantity or too concentrated, otherwise the virus, instead of proliferating locally and exercising an immunising effect, would be weakened and destroyed. After two such combined inoculations a third is given consisting of virus alone. A generalised resistance is thus set up.

The following represents the dosage and method, comprising three series of inoculations given at intervals of 10 days:—

First Stage.

Intradermic injection of specific serum in the following doses:—guinea-pig, $\frac{1}{5}$ c.c.; sheep and pig, $\frac{1}{4}$ c.c.; ox, $\frac{1}{2}$ c.c. Subcutaneous injection of specific serum in the same doses as above and in exactly the same place. Intradermic injection of virus, about one inch distant from site of previous injections. The virus is used in dilution with glycerine and water (1 in 1,000 or below). Dosage:—guinea-pig, 1/20th c.c. and in proportional doses to the larger animals.

Second Stage (10 days later).

Similar doses and procedure as in first stage except that virus is given in a slightly larger dose and not so diluted. Inoculations are made in a different region of the body, or if an ear has been used as site in the first stage, then the opposite one for the second stage. The author has found the ear site very convenient and practical in the larger animals.

Third Stage (10 days later).

Intradermic injection of virus in any part of the body and given in same dose and dilution as for the second stage.

After vaccination, guinea-pigs may register fever for a day or two, but no clinical symptoms of foot-and-mouth disease are shown. In the larger animals neither fever or local reactions are observed. Immunity is acquired for more than six months. The author recognises that modifications are necessary so as to simplify the method, but in practice he has found that inoculations can be administered easily and quickly. This method may also be carried out in regions of country free from foot-and-mouth disease, as animals so treated do not show local aphthous reactions and consequently cannot be a source of spread. The author states that even though local reactions are shown, as sometimes occurs either by accident or idiosyncrasy in a particular animal, no bad results follow, these cases being very benign and soon clearing up without further spread of disease. In animals which have received the second series of inoculations immunity is so strong that they do not contract the disease even though an animal showing clinical symptoms of foot-and-mouth disease be allowed to mix with them. The disease dies out on the spot.

In a further note Professor Lignières passes observations on the extreme variability of foot-and-mouth serum both as regards pathogenic and immunising qualities. "Nothing is more interesting, complex or deceiving," he says, "than the study of this disease, and many surprises await the investigator." Guinea-pigs which have been treated with serum and virus as in Waldmann's method have acquired a complete immunity to subsequent injection of virus, while others treated in an exactly similar manner have shown generalised reactions and symptoms. Exhibition of local visible lesions is not always followed by immunity in the subject.

T. J. M.

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[Pernocton Narcosis in Dogs. Srnetz, A. *Prag. Archiv f. Tiermed.* 1932. Vol 12. No. 10.]

Pernocton, the 10 per cent. sodium salt of the secondary butyl-beta-bromallyl barbituric acid, has been used by several veterinary surgeons in the last five years and the author has used it for four years in the surgical clinic of Brno veterinary college.

For dogs and cats an intravenous dosage of 0·3 c.c. per kg. of body weight is given to procure deep narcosis, which comes on even whilst injecting it and lasts for three to five hours. In doses of 0·6 c.c. per kg. and upwards pernocton is a good lethal agent. For narcosis, however, no fatality should occur if the injection is made at a rate of not more than 1 c.c. per minute. Pernocton narcosis is very deep and evidently does not call for further general anæsthesia by chloroform, etc.

J. E.

Review

[**"Pulpy Kidney" in Lambs.** Pamphlet No. 35, Council for Scientific and Industrial Research, Commonwealth of Australia.

No. I: "Pulpy Kidney" or acute Infectious Entero-toxæmia of Suckling Lambs due to *B. OVITOXICUS* **(Bennetts),** by D. T. Oxer, B.V.SC.

No. II: "Pulpy Kidney": A Post-mortem Change in Experimental Entero-toxæmia, by H. W. Bennetts, B.V.SC.]

The above investigations, financed jointly by the Australian Pastoral Research Trust and the Empire Marketing Board, throw considerable light on the nature of a troublesome disease of suckling lambs known in many parts of the Empire, and called on account of a prominent lesion, "pulpy kidney" disease. Gilruth first drew attention to it, stating that it occurred among the best and strongest single lambs of about one month to eight weeks old, the affected lambs dying after a remarkably short illness. From the earliest the disease has been associated with a plethoric condition of the lambs, and is now thought to be commoner on rich, improved pastures, or where the sheep are receiving supplementary rations rich in proteins. Since the trend of modern agricultural practice is to exploit grassland management to increase production, it follows that diseases of this nature will become more evident, so that the conclusions arrived at in the above investigations are of considerable interest to members of the veterinary profession.

Naturally-affected lambs are commonly found dead, it being unusual to observe cases alive. The history, however, shows that there are loss of limb power, convulsions with violent galloping movements and death. The lesions are most marked when the examination is delayed for some hours after death, when the kidneys will be seen to show degeneration and are soft and pulpy, and there may be subcapsular hæmorrhages. If the *post-mortem* be conducted immediately after death the kidneys merely show congestion of the boundary zone, showing clearly that the pulpiness develops as a *post-mortem* change. In addition to the kidney changes a variable amount of pleural and a great excess of pericardial fluids are generally present, while the liver is enlarged and congested. The greatest mortality is found to occur on pastures which are young and succulent and which have a large proportion of clovers in their composition. Without doubt many practitioners will find in the articles comprising this publication an explanation of a disease which must have troubled them at times in the past, and there is a certain amount of evidence that this or a similar disease is not unknown among cattle.

These appearances, then, are due to toxæmia, and in the first paper the author, following Bennetts' technique, succeeded in showing that the toxin is elaborated in the small intestine of affected lambs, due to the proliferation of *B. ovitoxicus* (Bennetts), a microörganism of the *B. welchii* type. Filtrates of small intestinal contents from three natural cases of "pulpy kidney" disease were shown to be highly toxic for lambs, and caused characteristic *post-mortem* changes following intravenous and intramusular injections of small amounts. The toxin is neutralised by *B. ovitoxicus* antiserum, but not by the antisera of *B. welchii* or *B. œdematiens*, and an organism was isolated from the small intestines which produced toxic cultures, also neutralised by *B. ovitoxicus* antiserum. Altogether, the author has clinched his case with the material at his disposal, but one would have preferred a larger number of natural cases. Only three such cases were used for experimental work, but in a disease such as this with its short seasonal incidence, the difficulty of obtaining suitable cases is often a very real one.

Bennetts, in 1932, published a paper showing that the so-called braxy-like disease of sheep in Western Australia was caused by the multiplication of a specific toxicogenic anærobe within the small intestine contents, and he named the disease "infectious entero-toxæmia." In this disease renal degeneration, or "pulpy kidney," is a constant feature if several hours elapse between death and *post-mortem*. In the second paper quoted above, Bennetts observed identical kidney changes in fat lambs which were experimentally infected with entero-toxæmia, and he thus supports the claim of Oxer that these conditions in sheep and lambs are pathologically identical.

The reviewer agrees with Oxer, who states that *B. ovitoxicus* is probably widely distributed in nature, but vaccination against this organism can scarcely be expected to become a rational method for control. Prevention of "acute infectious entero-toxæmia of suckling lambs"—a name which suitably describes the disease—will probably best follow upon a clearer understanding of the predisposing cause or causes, which would seem to be even more important than the actual cause. The susceptibility of lambs appears bound up with diet and prime condition of the lambs, and what is the effect of bowel stasis? It is a a long time since Gilruth said that the best and surest method of prevention is to dock the tail when the lambs are about three weeks old. Nevertheless, the authors have done valuable pioneer work in elucidating the nature of the exciting cause of "pulpy kidney" disease and it is hoped that they may be enabled to continue their investigations into other aspects of the disease, and that a practical preventive may soon be forthcoming.

Reports

DEPARTMENT OF AGRICULTURE, NEW ZEALAND, 1931-32

This report provides an interesting survey of the Department's activities for the period under review. It deals with agricultural, pastoral, chemical, and horticultural problems and records the progress which has been made in each. The sections relating to veterinary and biochemical research should prove of value and interest to veterinarians, since they include scientific data of importance to those engaged in either practice or technical work.

In his letter of transmittal the Director-General of the Department (Dr. C. J. Reakes) refers to the effects of the unseasonable climate of spring and summer upon the average milk yield, which has further suffered owing to the decrease in the use of fertilisers—a result of the lowered purchasing powers of the farmer. To overcome the latter difficulty a subsidy for the purchase of superphosphate has been provided—a boon of incalculable value to those suffering from the adverse economic conditions which at present prevail.

Abortion, sterility, and mastitis are prominent among the diseases affecting the dairy herds of the Dominion. In connection with sterility, the systematic examination of semen, in order to estimate the relative fitness of bulls for efficient service, has yielded very promising results.

In an endeavour to check the incidence of mastitis a method of control involving the examination of the milk of each cow, the milking of cows in a set order, and further examinations undertaken at intervals, is now undergoing a trial in a number of herds. The experience in New Zealand in regard to vaccine therapy appears to coincide with that in other parts of the world, *viz.*, that it is of no avail in the treatment of this disease.

The Director-General draws attention to the increasing sale of proprietary remedies for animal diseases, particularly those affecting dairy cows. As is frequently the case, these are often crude, inefficacious, and expensive. One of these "cures," supplied for external application for mastitis, was found to contain "a good proportion of cow dung"—an ingredient which takes us back to the good old days of "Markham's Masterpiece" and mediæval practice. The framing of legislation is suggested to put a stop to the sale of all remedies which are not registered and which do not disclose the nature of their formulæ. World-wide legislation on these lines would be of advantage to all concerned—except the medicine vendors.

Within the last three years New Zealand has added 400,000 cattle to its dairy herds. This rapid expanse in the dairy industry affords an ever-widening field for practice and scientific research and we are not surprised to find the Officer-in-Charge of the Veterinary Laboratory appealing for further assistance to enable him to cope with the many problems which call for investigation under laboratory conditions and by the rest of the veterinary staff of the Department.

In connection with the control of noxious weeds, an interesting observation is the fact that sodium chlorate has been found effective and economical in respect to ragwort—a dangerous weed, widespread in the Dominion. To render the sodium salt free from the danger of combustion, the Chief Chemist recommends the addition of calcium chlorate in the proportion of 4 ozs. sodium chlorate and 8 ozs. calcium chlorate in 2 gallons of water for early growths, and 6 ozs. sodium chlorate and 8 ozs. calcium chlorate in 2 gallons of water for plants in a more advanced stage.

The section of the report by the Director of the Livestock Division (Mr. J. Lyons) is an interesting summary of the situation relating to the New Zealand livestock industry. The breeding of horses, Mr. Lyons tells us, is, with the exception of thoroughbreds, at a standstill, and this in spite of the facts that a number of Clydesdales have been exported, and that inquiries for heavy draughts have been received from Australia.

Condemnations for tuberculosis following the clinical examination and tuberculin testing of herds accounted for 5,831 cattle. Among cattle slaughtered at abattoirs and meat export works, 5·8 per cent. were found affected with tuberculosis, while 11·09 per cent. of pigs were condemned for tuberculosis, mostly of slight degree.

We note that, contrary to the former practice under the Stock Act—where actinomycosis was a scheduled disease entailing slaughter of the affected—treatment is now allowed. This disease is said to be on the decline.

Although much information, mostly of an academic kind, has resulted from the study of mastitis, effective preventive and curative measures have yet to be discovered. The organisation of a dairy herd into affected and non-affected, after the method already alluded to, presents many practical difficulties as well as additional expense.

The incidence of abortion appears to be consistently less. This decline is ascribed partly to the high degree of immunity acquired as a result of the wide dissemination of the disease.

Blackquarter has also decreased, outbreaks numbering 45 per cent. less than in former seasons.

In the control and eradication of cattle tick

the greatest importance is attached to the clearing and destruction of undergrowth and scrub. Although piroplasmosis does not occur in New Zealand, redwater, of apparently dietetic origin, has been frequent in the northern provinces.

In view of its great importance in relation to the export trade in mutton, lymphadenitis continues to receive close attention both from the points of view of meat inspection and also investigation into the methods of propagation. The latter seems to be generally through wounds inflicted during shearing and docking operations, etc. Elimination of all affected animals has been found helpful in the control of this disease, although diagnosis during life, on account of the deep-seated nature of the lesions, is, in many cases, impossible.

Renal congestion in lambs (pulpy kidney) has been ascertained to be due to an organism of the *B. welchii* type which elaborates a toxin in the small intestine. As a means of prevention susceptible lambs are subjected to a twenty-four hour period of starvation every seventh day. Good results have followed this practice.

The control of liver fluke by land drainage and the administration of carbon tetrachloride has been attended by marked success. For pigs affected with sarcoptic mange, crude petroleum has been found an effective remedy.

The section of the report by the Chief Chemist (Mr. B. C. Aston) covers a wide range of observations and experiment. It records that finely ground limonite (hydrated iron oxide) has yielded remarkably good results in the prevention of the so-called bush sickness (iron deficiency disease) in sheep. The iron oxide is used in the form of a stock lick which, when combined with salt, is readily acceptable to sheep.

Enquiries into iodine deficiency and its consequences are receiving close attention.

In connection with studies on the conditions surrounding the absorption of iron, the fact that it exercises a pronounced influence upon the growth of hair has been observed—a fact which we believe has already been exploited by proprietors of human hair restoratives.

The section by the Officer-in-Charge of the Veterinary Laboratory (Mr. C. S. M. Hopkirk) amplifies the information on the subjects referred to by the Director-General, and the Director of the Livestock Division, and details the number and variety of the investigations which are being conducted at this source.

Biological tests for tuberculosis, carried out with composite milk samples from town supplies, set up tuberculosis in only 1 per cent. of the guinea-pigs inoculated. Tuberculous mastitis has never been frequent in New Zealand.

The report illustrates the important rôle which the Department of Agriculture occupies in New Zealand's primary industry and the wide field of its activities. It also serves to show the immense utility of the Department to those engaged in agricultural and pastoral pursuits and the very great assistance these receive as a result of the scientific and technical work now undertaken by the Dominion Government.

H. A. R.

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Adulteration of Milk and Drugs

The value to the community of the public analyst is revealed in the annual report on the sale of food and drugs issued by the Ministry of Health (Stationery Office, 4d. net). Adulteration is declining but it is still practised, and there are many instances discovered where articles are sold which bear little relation to the description placed upon them.

During 1931 the number of samples of food and drugs submitted to public analysts was 136,169, and of these 6,324, or 4.6 per cent. of the number examined, were reported as adulterated or not up to standard. This is the lowest percentage recorded, and compares with 4.8 per cent. in 1930 and 5.4 per cent. in 1929.

The number of samples of milk analysed by public analysts was 70,201, which is the highest recorded. The number reported to be adulterated or not up to standard was 4,507. In 27 samples the presence of visible dirt was reported, and 17 were found to contain colouring matter. In one instance in which the sample was reported to be 8.7 per cent. deficient in milk fat and also to contain colouring matter and formalin, fines and costs amounting to £23 0s. 6d. were imposed on the vendor. The number of samples of cream submitted was 2,163, of which 14 were reported against as containing boron preservative. Thirteen samples sold as cream consisted of reconstituted artificial cream, four samples of tinned cream were deficient in milk fat, one contained 65 parts per million of tin, three contained fat other than milk fat, and two were mixtures of starch and sugar.

In the case of drugs 236 of 5,257 samples examined were reported as adulterated or not up to standard. Glauber salts were found to be dehydrated sodium sulphate, and ammoniated quinine tablets were almost devoid of ammonia.

CLEAN MILK PRODUCTION

There were fewer clean milk competitions organised in 1932 than in some past years owing to the economies necessitated by the financial position, but the educational work of the county councils undertaken to assist producers in improving the quality of their output has continued usefully. The competitions were confined mainly to producers who had never before competed or had failed to reach the standard of efficiency necessary to secure a certificate of merit. They are thus a valuable means of education. The practical value of these competitions is shown by the fact that several companies and societies engaged in the retail distributive trade paid a bonus on a gallonage basis or awarded cash prizes to such of their suppliers as had good records in clean milk competitions. The knowledge of up-to-date hygienic methods gained by participation in these competitions is likely to be of the utmost value to producers in qualifying for the roll of accredited producers which the Milk Commission propose in their report.

N.V.M.A. Divisional Report

CENTRAL VETERINARY SOCIETY

A well-attended meeting of the Central Veterinary Society was held at the Royal College, 10, Red Lion Square, W.C.1, on the evening of Thursday, February 2nd, 1933, with the President, Capt. R. J. Stow, in the chair.

There were also present Capts. H. Andrew, L. S. Balls and R. Bennett, Mr. W. Brown, Capt. R. Bryden, Capt. R. E. Bullen, Dr. F. Bullock, Capt. G. N. Bushman, Mr. H. E. Bywater, Major C. Davenport, Major W. Denington, Mr. C. Formston, Mr. S. L. Hignett, Sir Frederick Hobday, Messrs. J. W. H. Holmes, H. D. Jones, Herbert King, H. C. P. King, N. S. King, and W. S. King, Lieut.-Colonel B. L. Lake, Miss Beatrice L. Lock, Mr. W. J. Leyshon, Professor James Mcqueen, Dr. J. McCunn, Mr. J. W. McIntosh, Capt. G. Dunlop Martin, Major General Sir John Moore, Mr. Walter Perryman, Major F. S. Probyn, Miss K. W. Shedlock, Mr. F. E. Somer, Major F. J. Taylor, Mr. C. N. Thompson, Mr. M. J. Torres, Major R. F. Wall, Mr. R. A. Willett, Brigadier A. J. Williams, Mr. J. D. Williams, Professor J. G. Wright, Professor G. H. Wooldridge and Capt. J. F. Macdonald (Hon. Secretary.)

Messrs. J. A. Gourley and F. A. Shaw were present as visitors.

Confirmation of the minutes of the previous meeting was held over pending their publication in the *Record*.

CORRESPONDENCE.

From Lieut.-Colonel E. P. Argyle, Major A. N. Foster, Dr. Tom Hare, Mr. G. P. Male, Major W. B. Howe, Captain W. K. Townson and Messrs. F. W. and J. Willett, apologising for absence.

The Hon. Secretary informed the Fellows that Capt. Townson had been laid up since the last meeting with influenza and serious complications, and on the proposition of Mr. McIntosh it was unanimously agreed to send an expression of sympathy with him in his illness and the sincere hope that he would soon be with them again.

(2) From the Royal Sanitary Institute, thanking the Society for notifying the name of the delegate to the Blackpool Congress.

(3) From the Editorial Representative of the N.V.M.A. stating that the Editorial Committee would appreciate the appointment of one of the Fellows of the Society as Divisional Representative of the *Veterinary Record*, for the purpose of enlisting the aid of his fellow-members to supply the committee with clinical material and personal and other notes likely to be of interest to *Record* readers.

Major H. Kirk having spoken in support of the appointment of a Divisional Representative, Capt. G. Dunlop Martin's name was proposed and unanimously accepted.

Morbid Specimens and Clinical Cases.

Prof. J. G. Wright said that he had a specimen of localised chronic tracheo-bronchitis from a dog, due to infestation with the nematode parasite *Oslerus osleri*. Lesions took the form of sessile polypoid granulomata, which partially occluded the trachea or bronchi. The common seat was at the termination of the trachea at the bifurcation.

The condition, which was comparatively common, was in his experience, most frequently encountered in old animals. It gave rise to a chronic dry cough which became progressively worse and was in no way relieved by expectorants or respiratory sedatives. It had usually been in existence for some months before one was consulted. The animal usually was eventually destroyed because the cough had become almost continuous. Apart from the cough, there were no symptoms, and the animal remained in good health

He would refer members interested in that subject to an article by Dr. Tom Hare, in the *Veterinary Record* of 1931, in which he reviewed the literature on the subject, and described a case, similar to that one, fully.

The lesions were spoken of as parasitic when the worm was present in them, and sterile after it had escaped. As an animal was not destroyed until the condition had been in existence for months, or even years, the lesions were sterile at *post-mortem*.

Positive diagnosis was difficult, or even impossible without the aid of a bronchoscope. The condition, however, was common, and in cases of chronic cough in which one had been able to eliminate disease of the larynx, heart or bronchial catarrh as the cause, one was led to suspect that condition.

As far as he was aware, the life history of the parasite is unknown.

He had attempted to treat the condition on lines similar to those adopted by Bissett for the treatment of "husk" in sheep, *viz*, by inhalation, but without success.

The specimen in question was obtained from an 8-year-old mongrel bitch. The animal had suffered from a chronic cough for 12 months or more, and at the time of destruction the animal, to use the words of the owner "coughed day and night."

Mr. Cyril King exhibited the fractured skull of a horse, this being the result of an accident in which the animal was hit by a motor lorry. The impact knocked the horse down, but it got up and walked a distance of half a mile to a stable. On examination, the speaker ordered its immediate destruction, and on boiling out the

specimen they found not only a compound comminuted fracture of the near side of the face but a fracture of the base of the skull. The occiput, the sphenoid and the parietal bones were fractured on both sides.

The question was whether all those fractures were the result of the accident, or whether they or some of them, were caused by the shooting of the animal.

There was no incoördination of movement—the horse walked quite well.

Major H. Kirk exhibited the liver of a cat, stating that it struck him as curious that the gall bladder went right through the right lobe, that had nothing to do with the cause of the cat's death, but it seemed remarkable to him, as he had never previously seen such a condition.

Mr. Herbert King showed two specimens: in each case a pedal bone. In one was a well-marked indentation, due to a keratoma; in this case the horse was intermittently lame for three or four months, eventually becoming so lame that it had to be destroyed. In cases of keratoma the lameness was always more less intermittent until suppuration occurred, when continuous lameness supervened and necessitated the destruction of the animal.

The other pedal bone showed fracture of the pyramidal process. There was no previous history. The horse came to him exceedingly lame, and, as they could imagine, there was nothing to feel or to see. He suspected that there was something fractured, but could obtain no crepitus. The horse was kept for three weeks, but got no better and was destroyed.

On three or four occasions he had seen cases in which the pyramidal process had even been knocked off. In cases of fracture of the pedal bone there was usually some bulging of the horn which indicated that the trouble was in that vicinity.

The case in question was particularly interesting because of the sudden onset of extreme lameness, and it was just a question—considering the amount of bulging of the horn—whether there was not some ostitis in progress at the time. There was no report of an accident having occurred: when within a few hundred yards of the stable the horse suddenly dropped lame.

Mr. W. Perryman expressed great interest in the two pedal bones brought by Mr. King, particularly in that presenting evidence of keratoma. As Mr. King had said, keratoma was often a troublesome complaint because the lameness was intermittent. Thinning the horn on the front of the foot would relieve pressure and with it the lameness, but both would recur when the horn grew again.

Some of the fellows might remember that two or three years ago he produced for their inspection the foot of an animal the subject of keratoma. In that case he took the heroic course of throwing the animal and stripping practically the whole of the foot. The horse worked for four or five years afterwards and eventually died with a twisted bowel. He believed that if more heroic treatment were adopted they would get better results. If the membrane, with the degenerated horn, was taken away in cases such as that cited by Mr. King, the animal would be brought back to work again, he believed. If the animal were worth it, he thought it was an operation that veterinary surgeons might adopt more often, because one knew the great ability of the foot structures to recover after surgical operations.

Professor G. H. Wooldridge confirmed what Mr. Perryman had said in regard to keratoma, except that he thought that the operation might be made much more clear cut than he had suggested. The hoof should be grooved deeply about one inch on either side of the keratoma, penetrating until one got down to the sensitive structures, and the sole also to the white line; then the whole area included should be stripped from the sole to the coronet. He had operated in that way several times and the horses, with the protection of a tarred bandage, had gone to work without difficulty.

Dr. J. McCunn said he was very interested in Mr. Herbert King's specimens: in the case of the keratoma specimen for more reason than one, because they wanted one at the College.

He could see no good arising from any operation on the horn over that tumour because the keratoma grew from the horny laminæ side of the interdigitations of the laminæ, and when the horn grew down again the trouble would recur.

The case involving the pyramidal process was also an interesting one, for although, to his mind, it represented a fracture, it was not a fracture as they ordinarily understood that condition. What had happened in that case was that the extensor pedis tendon, which was inserted into the pyramidal process, had been torn off. In such cases, when they boiled out the structures involved, they would find that at the point of insertion of the tendon the bone was not so strong as was the tendon. If they got a torn tendon in a case like that, or one at the lower end of the femur, they would find a portion of bone pulled away. Most fractures of the patella were due to a sudden slip. In such cases the anterior crural muscles suddenly pulled on the patella, and as the lower end of the patella was firmly anchored, nothing gave way and often the patella cracked right through. He thought that Mr. King's case was due to a sudden slip, with the consequent tearing off of the pyramidal process.

Professor J. G. Wright hesitated to accept Dr. McCunn's dictum that the bone was weaker than the tendon, in the instances cited by him, in view of the fact that they were given to understand that the os pedis, next to the petrous temporal bone, constituted the most compact tissue in the

body. Moreover, he did not think that the patellar analogy could be taken without some reservation.

Professor James Macqueen observed that he should like to add a word to what had been said with regard to that keratoma, for he did not exactly agree with the summing up of some of the gentlemen who had preceded him. In his experience keratoma of the toe wall was not always remediable by any operation. Sometimes, if one could induce the owner of the horse to put up with its idleness for a period of six to eight months, excision of the keratoma gave a very good result, but there was always this possibility—that the growth might form again, though not immediately; and as an alternative to the excision of the growth he would suggest neurectomy. If Mr. King's horse had been unnerved he had no doubt that it would have been working to-day.

With regard to the pyramidal process of the os pedis in the specimen before them, he would say that the evidence of fracture was not very clear: it looked to him more like a bruise of the coronet, causing a certain amount of ostitis.

Mr. J. D. Williams said that he was particularly interested in Professor Wright's specimen of worms invading the bronchi of a dog. He desired to ask him if there were any means of diagnosis other than by the process of elimination.

Prof. Wright replied that he had no suggestion to offer in that regard, other than the use of the bronchoscope, which had not yet, he thought, been successfully introduced into veterinary practice as a diagnostic aid. A helminthologist might conceivably recognise the worm eggs in the animal's fæces. In one of his cases fæces were sent to Professor Leiper, but he was unable to detect in them any evidence of the presence of the eggs of *Oslerus osleri*. Whilst one might diagnose the condition, however, one could not treat it, in his experience.

Capt. Dunlop Martin enquired if, in any of the cases in which he had suspected the condition, Prof. Wright had tried intra-tracheal injection (on the lines of the treatment of 'husk' in calves) as a possible cure.

Prof. Wright replied that the point about these cases was that it was not the worm which caused the symptoms but the lesion which resulted from the worm infesting the mucosa. He had attempted treatment, not by intra-tracheal injections, but by a rather simpler method, and that was by chloroform inhalation: he saw no result at all, however.

Dr. McCunn asked Mr. King if there was no external lesion at the coronet in his "pyramidal process" case. In regard to the keratoma, he understood him to say that the lameness was intermittent, and that suppuration occurred every now and again. How did suppuration occur in a condition like keratoma—the growth being, to his mind, completely sealed up and more or less aseptic.

Mr. Herbert King, in reply, said that there was no evidence of injury in the first case.

With regard to the keratoma, suppuration was a very constant symptom of that condition, in which one could often find separation taking place between the tumour and the surrounding horn. It was this suppuration, combined with the pressure, that, in his view, caused the acute pain.

Major C. Davenport said that two months ago he had a mule sent to him at the hospital with pus oozing at the coronet. On looking up the animal's history he found that it had been in hospital twice previously for under-run sole. On examining the foot he found two marks on the wall evidently the sites of previous bursts of pus at the coronet. The conclusion to which he came was that this mule had been an ordinary case of under-run sole which had been allowed to heal up before complete drainage had been established. He put the mule down on the bed and found it was a case of keratoma.

He suggested to the meeting that the exciting cause of keratoma might be that the animal had, at some previous stage of its existence, suffered from an under-run sole which had burst at the coronet.

Mr. Herbert King commented that that was one reason why he was a little surprised when Professor Macqueen suggested that neurectomy might have beneficial results.

Mr. Perryman also joined issue with Professor Macqueen on the point, saying that if one were to unnerve a horse with a suppurating keratoma the foot would soon be off.

Professor Wooldridge's view was that suppuration at the toe was secondary to the attempt to cut out the keratoma. In the uncomplicated case of keratoma there was no reason why neurectomy should not be carried out; nevertheless the surgical removal of the growth in some of those cases was very good practice, and paid in the end. In one instance he got recurrent lameness for a time, and then neurectomy was carried out, and the horse worked perfectly well afterwards.

Professor Macqueen met his critics with the observation that it was evident that the knowledge of some of the speakers in regard to keratoma was neither very extensive nor very profound. First let him say a word with regard to the nature of keratoma: keratoma was, as Dr. McCunn had said, a horny growth, and it produced atrophy of the covering of the os pedis—the pressure exercised by the keratoma was responsible for the lesion in the covering of the bone; it was also responsible for the groove which constituted the second lesion in keratoma.

Then as to relief of the condition: it was all

very well for Mr. Perryman and Mr. King to say that they would not perform neurectomy, but he (Prof. Macqueen) had practised neurectomy in keratoma and obtained relief, not on one occasion, but on several; moreover, if the owner of the horse was not disposed to lose its services for from six to eight months, neurectomy was the very best treatment. He, of course, would not operate by neurectomy on a horse with a suppurating sole or anything of the kind. Let them wait until suppuration had disappeared; there was not the slightest reason for hesitating about performing neurectomy for the relief of keratoma lameness in the absence of suppuration or necrosis.

There were two kinds of keratoma: there was one in which the growth was hollow, and that commonly went by the name of fistulous keratoma, but the effect on the os pedis was the same whether the growth was hollow or solid. In the latter form the horn at the toe was very difficult to cut, and that was the indication that was usually discovered by the examiner when searching for keratoma.

Lameness in keratoma was not intermittent, as a rule: keratoma was almost continuous in its effect upon the action of the horse.

As to the operation of excision, he agreed with Professor Wooldridge that the proper treatment, if one could obtain the sanction of the owner, was to excise a section of the toe wall, which of course included the keratoma: the horny tumour always stopped about one to one-and-a-half inches from the coronary band. Then put on an ordinary plain shoe reversed: between the two branches there was that space in the wall which could be bandaged. In two months or so the horse was was sufficiently recovered to resume work, but wearing a shoe truncated at the toe.

Nominations for Fellowship.—The following gentlemen were nominated for election as Fellows of the Society: Mr. R. T. Howell, of Fitzroy Square, W.C. (proposed by Dr. McCunn, seconded by the Hon. Secretary), and Mr. Patrick Norrington, of Staines (proposed by Mr. R. A. Willett, seconded by Miss B. L. Lock).

Greetings from the Central Veterinary Association of India:—Major C. Davenport, who has recently returned from India, then rose to deliver greetings from the Central Veterinary Society of India to the Central Veterinary Society of London, and gave a short account of the activities of this Society in the East.

The President thanked Major Davenport, on behalf of the Society, for the excellent address he had given them in delivering those greetings, adding that he was sure they all congratulated Major Davenport on the way in which he had been able to help the small society from which he had brought them. (Applause.).

He was confident that it would be their pleasure to send some word of encouragement to that thriving society. As Major Davenport had said, they were on the right lines. He put that as a proposition: it seemed to him to be excellent news that those people were trying to co-operate with the English Veterinary officers in India; indeed, he deemed it to be the best news that he had heard from India for a long time. (Hear hear.)

Professor Wooldridge said that he was very delighted indeed to hear Major Davenport, and he felt that they should, in a sense (since they now knew the origin of it) regard that Society as something of an infant product of their own society, named after them and apparently running on somewhat parallel lines. He suggested, therefore, that they send greetings to them in some such words as these: "That the Central Veterinary Society, of London, sends greetings to the Central Veterinary Association of India, and wishes it success and prosperity in all its professional undertakings."

The proposition was carried unanimously and with acclamation.

The meeting now proceeded, in the words of the agenda, "to discuss the difficulties met with in prosecutions for alleged cruelty to animals." The discussion, which was opened by Captain L. S. Balls and Dr. McCunn, was very prolonged, the majority of the members present participating. Half-an-hour after the customary time for terminating the proceedings it was agreed to place the following on the agenda for the next meeting: "To consider further the difficulties met with in connection with prosecutions for alleged cruelty to animals and to decide if any, and if so what, action can be taken."

The meeting concluded with a hearty expression of appreciation of the President's services in the chair.

J. F. Macdonald, *Hon. Secretary.*

MUSK RAT EXTERMINATION

Dr. Putsat, chief organiser of the campaign against musk rats in Bavaria, and Herr Roith, an experienced Bavarian trapper, have arrived in Shropshire to join in a campaign for the destruction of musk rats in that county and Montgomeryshire, where considerable damage has been caused to the banks of the River Severn and its tributaries.

A Canadian trapper and 36 others more or less experienced have been engaged under the Ministry of Agriculture, who are running the campaign in conjunction with the Shropshire County Council, for some time past, with the result that about 1,800 musk rats have been accounted for. Although their numbers have been reduced during the winter months, the area infected has been extended, and is now about 500 square miles.

The arrival of the Bavarians coincides with the commencement of the breeding season. They have brought with them special apparatus for their work. Reports that musk rats have been shot in the streets of Shrewsbury are fiction.

It is estimated that the cost of the campaign started a few months ago will by April amount to £4,000.

In Parliament

WILD BIRDS IN CAGES

In the House of Lords on Tuesday of last week Lord Buckmaster secured the second reading of his Bill to restrict the catching and keeping of British wild birds.

The Bill would make liable to a fine not exceeding £2, or for subsequent offences a fine not exceeding £5, any person who "takes alive and keeps in a cage or other receptacle," or who sells or offers for sale, any bird in a list which appears in a schedule of the Bill.

The list contains 61 distinct varieties, and includes blackbirds, finches, jays, larks, linnets, nightingales, robins, sparrows, starlings, swallows, thrushes, tits and wrens.

The prohibition does not apply to a zoological society.

The Bill was given a second reading on the understanding that it would go before a Select Committee.

* * * * *

The following questions and answers were recorded in the House of Commons recently:—

Light Horse Breeding

Mr. Anstruther-Gray asked the Financial Secretary to the War Office what means the War office proposes in future to encourage the breeding of light horses in Great Britain following the withdrawal of the light horse breeding grant?

The Financial Secretary to the War Office (Mr. Duff Cooper): I would refer my hon. Friend to the reply which I gave on the 11th July last to my noble Friend the Member of Roxburgh and Selkirk (Earl of Dalkeith). No special steps involving expenditure can be contemplated.

HEAVY HORSE SOCIETIES (GRANT)

Mr. Drewe asked the Minister of Agriculture if he can state the amount of grant that will be available for the heavy horse societies this year?

Major Elliot: The Ministry's Estimates for the financial year 1933 have not yet been finally settled, but a sum of £9,950 has been provisionally included in respect of the service mentioned.

HORSES (EXPORTS)

Mr. Whiteside asked the Minister of Agriculture the number of horses and ponies, respectively, which left the registered ports of Britain during 1932, or to the latest convenient date, for the Continent of Europe, and the corresponding figures for 1931?

Major Elliot: During 1932, 3,458 horses and 194 ponies were exported to the Continent of Europe from registered ports, the corresponding figures for 1931 being 5,819 horses and 379 ponies.

FOOT-AND-MOUTH DISEASE

Sir Percy Hurd asked the Minister of Agriculture if, in view of the spread of foot-and-mouth disease over a large area from the Reading market, he is satisfied that the arrangements of local authorities for the disinfection of these premises are adequate; and, if not, what steps it is proposed to take?

Major Elliot: I have no reason to think that disinfection of Reading market was not carried out strictly in accordance with the regulations. There was only one outbreak of foot-and-mouth disease directly associated with the market. This occurred on January 25th, and there is no evidence of the spread of the disease as the result of inadequate disinfection after this outbreak. So far as concerns the preceding outbreaks, all the evidence points to infection having originally been contracted at the Reading loading docks of the Great Western Railway and not at Reading market. As all these infections, so far as can be traced, were contracted within the course of 24 hours in the loading banks, it would appear that disinfection here must have been very thorough and efficacious.

MILK (PASTEURISATION)

Captain Peter Macdonald asked the Minister of Health whether his Department has now reached any decision as to the value of and need for compulsory pasteurisation of milk, and, if so, what his decision is?

The Minister of Health (Sir Hilton Young): This is now under the consideration of a committee of the Economic Advisory Council which is examining the question of disease among milch cattle. Pending their report, I am not in a position to make any pronouncement on the subject.

MASSIVE RADIATION (CONFERENCE)

Mr. Leckie asked the Minister of Health what action he proposes to take to carry out the recommendation of the Radium Conference, whose report was published in January?

Sir H. Young: The conference on massive radiation to which the hon. Member refers was not summoned by me but by the President of the Royal College of Physicians and the President of the Royal College of Surgeons. It may, I think, safely be anticipated that the report of the conference will receive the attention of the Radium Commission and other bodies directly concerned with the therapeutic application of radium.

PIGS (SLAUGHTER)

Sir J. Power asked the Minister of Health whether he is cognisant of the recent investigations into the appliance known as the electrolethaler for the electric stupefaction of pigs before slaughter; and whether he will inquire into and report on the efficacy and suitability of the appliance in question, with particular reference to the period of unconsciousness produced by its use?

Sir H. Young: I have received some information about this appliance and shall be interested to receive any further reports from places where it has been tested. I have no funds at my disposal for any such inquiry as my hon. friend suggests.

MILK PRODUCTION INCREASE

How milk production has increased during recent years is shown by the latest estimates of the Ministry of Agriculture. Total production of milk (apart from that fed to live stock) in the year 1930-31 in England and Wales is put at 1,263 million gallons. This is 146 million gallons more than in 1924-25—a 13 per cent. increase.

Because of the comparatively small increase in the dairy herds, the rise in output has to be explained by an increase in yield per cow, which it is reckoned has risen from 482 gallons per cow to 539 gallons.

Some of this increase in the aggregate output has been converted into butter, cheese and cream, but less is being consumed in farm households, due it is suggested, to a decrease in the labour requirement. Consequently the bulk of the increase is represented in sales of liquid milk, which, in the period in question, have risen from 818 million gallons to 949 million gallons, an increase of 131

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

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DIARY OF EVENTS

Feb. 27th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, at 4.30 p.m.

Feb. 28th.—Meeting of the N.V.M.A. Veterinary Officers' and Public Health Committee, 2, Verulam Buildings, Gray's Inn, W.C.1, 3 p.m.

Mar. 1st.—Meeting of the British National Committee of the Twelfth International Veterinary Congress, at 2, Verulam Buildings, Gray's Inn, W.C.1, 2 p.m.

Mar. 2nd.—Meeting of the Central Division, N.V.M.A., at 10, Red Lion Square, W.C.1.

Mar. 10th.—Annual Dinner and Dance of the Yorkshire Division, N.V.M.A., at Leeds.

Mar. 11th.—Annual Meeting of the North of England Division, N.V.M.A., at Newcastle-on-Tyne.

Mar. 24th.—Complimentary Dinner to Sir Frederick Hobday, Mayfair Hotel, W.

April 1st.—R.C.V.S. Annual Fees due.

April 5th.—R.C.V.S. Committee Meetings.

April 6th.—**R.C.V.S. Annual Dinner,** Hotel Victoria, Northumberland Avenue, W.C.2, at 7.30 p.m. Tickets price 12s. 6d.

April 6th.—R.C.V.S. Committee Meetings.

April 6th.—R.C.V.S. Annual Dinner.

April 7th.—R.C.V.S. Council and Committee Meetings.

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ROYAL COLLEGE OF VETERINARY SURGEONS

Council Election, June 7th, 1933

The following have been nominated for election to Council, and their names have been included in the Voting Papers issued this month to members practising in the Dominions and Colonies, and other overseas countries:—

Name.	*Proposers.*
Dunkin, G. W.	J. M'Fadyean, O. C. Bradley.
Glover, R. E.	J. B. Buxton, P. J. Simpson.
Hobday, F. T. G.	H. Kirk, C. Formston.
Macqueen, J.	O. C. Bradley, J. B. Buxton.
Nairn, W.	J. G. McGregor, A. Spreull.
Rabagliati, D. S.	J. W. Brittlebank, J. Abson.
Simpson, P. J.	J. B. Buxton, W. Nairn.
Simpson, R.	J. W. Brittlebank, J. Lindsay.

R.C.V.S. OBITUARY

Grey, Walter, The Nook, Joy Lane, Whitstable, Kent. Graduated Edinburgh, May 24th, 1894. Died February 18th, 1933, aged 64 years.

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LADIES' VETERINARY BENEVOLENT GUILD

On Wednesday afternoon, February 8th, by kind permission of Captain J. N. Ritchie, Commanding the Royal (Dick) College Contingent of the Officers' Training Corps, a Whist Drive in aid of the funds of the Guild was held in the Common Room of the Contingent. Members and their friends were received by Mrs. E. Brown, Edinburgh; Mrs. W. M. Mitchell, Edinburgh; and Mrs. J. G. McGregor, Stirling, who were responsible for organising the entertainment.

On the conclusion of play the members of the Metropolitan Division, who had been holding their Annual General Meeting in the Anatomy Theatre, joined the ladies at tea, and thereafter the newly-elected President, Mr. E. Brown, was called on to present the prizes to the winners at whist—Mrs. Grey, Edinburgh; Mrs. Downie, Falkirk; and Mrs. Cameron, Corstorphine.

Great interest was shown in the affairs of the Guild and it was hoped that the meeting would become an annual affair. As a result of the Whist Drive the funds of the Guild will benefit to the extent of £6 12s.

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VETERINARY INSPECTION IN CHESHIRE

County to Adopt "Whole-Time" System

"Proposals by the Milk and Dairies Act Committee that five whole-time Veterinary Officers be appointed at a salary of £500 each per annum, *plus* travelling expenses came before the quarterly meeting of Cheshire County Council, at Chester to-day," says the *Evening Sentinel* of February 16th.

"The report of the committee, which was adjourned from the last meeting, contained a letter from the Cheshire Veterinary Inspectors' Association, and a joint report by the County Medical Officer and the County Veterinary Officer. In the latter report it was stated that the present expenditure for part-time Veterinary Inspectors' fees for the current year was:—under the Milk and Dairies Act, £1,000; under the Tuberculosis Order, £3,500; total for fees, £4,500. It was apparent (the joint report stated) that this work could be done by five whole-time Veterinary Officers at a considerable financial saving. Inclusive of all travelling expenses, the cost of the five officers was estimated at £3,250, a saving of £1,250 per annum. Among the recommendations was that the County be divided into five areas, each in charge of a whole-time veterinary surgeon, working under the supervision of the County Veterinary Officer, who would also continue to carry out examinations of cattle.

"In moving the adoption of the report of the Milk and Dairies' Act Committee containing the recommendation that five full-time Veterinary Officers be appointed, Mr. T. C. Goodwin explained that the new officers would take the place of 21 part-time men. At the present time, not only was the work duplicated, but the cost was almost duplicated. The appointment would not involve any increase in the clerical staff. He pointed out that the Council of the National Farmers' Union had made a recommendation to all their members with seats on county authorities that they should use their influence to institute a routine inspection of cattle on such lines. Mr. Goodwin added: 'Unless county authorities take the necessary action to clean up the milk supply of this country, it will be undertaken by

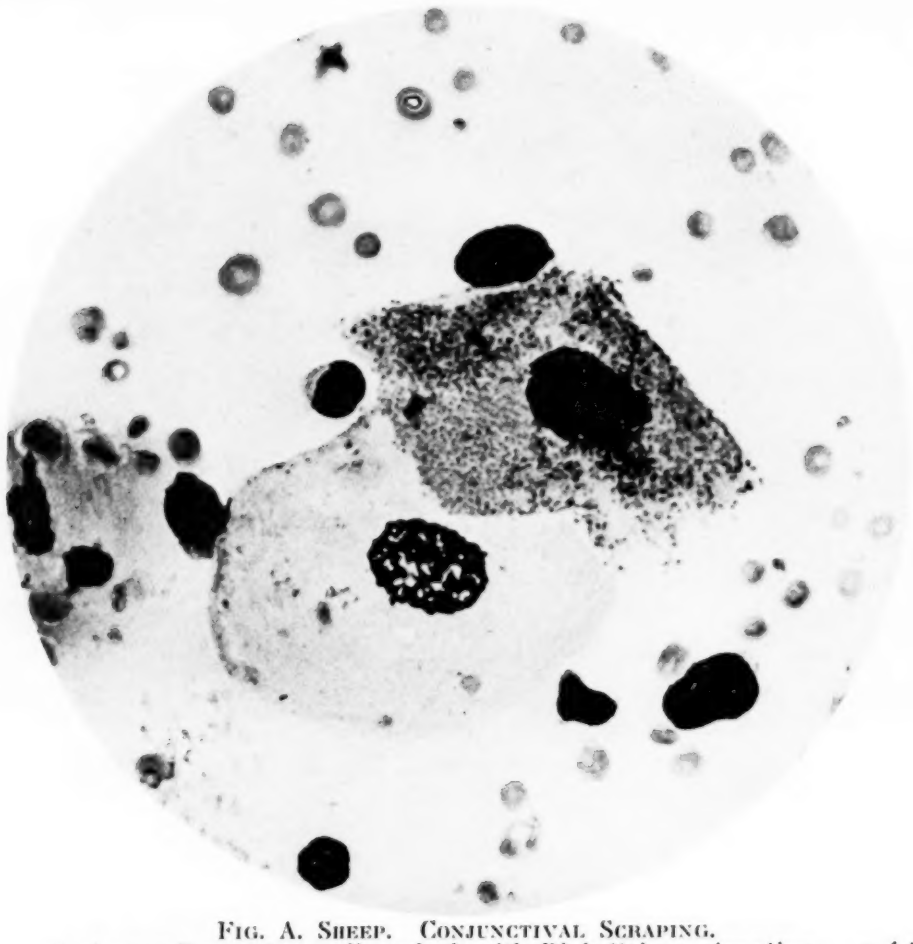

FIG. A. SHEEP. CONJUNCTIVAL SCRAPING.
A clean cell next to a cell packed with *Rickettsia conjunctivæ*. × 1,000.

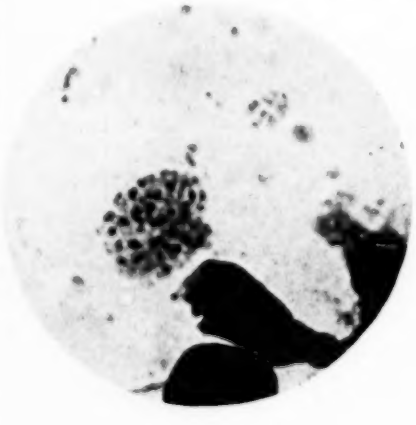

FIG. C. Rosette form of *Rickettsia conjunctivæ*: Conjunctiva of sheep. × 1,700.

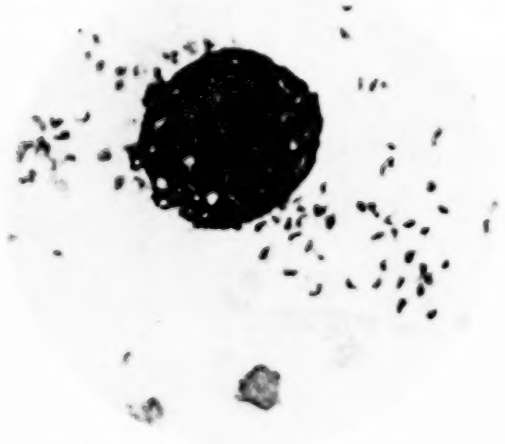

FIG. D. Conjunctival epithelial cell of sheep, showing an organism thought to be unassociated with disease. × 1,700.

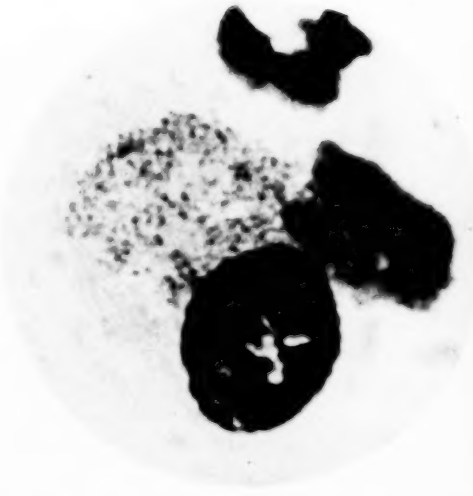

FIG. E. Conjunctival epithelial cell containing a Rickettsia mass. Calf. Natural case of ophthalmia. × 1,700.

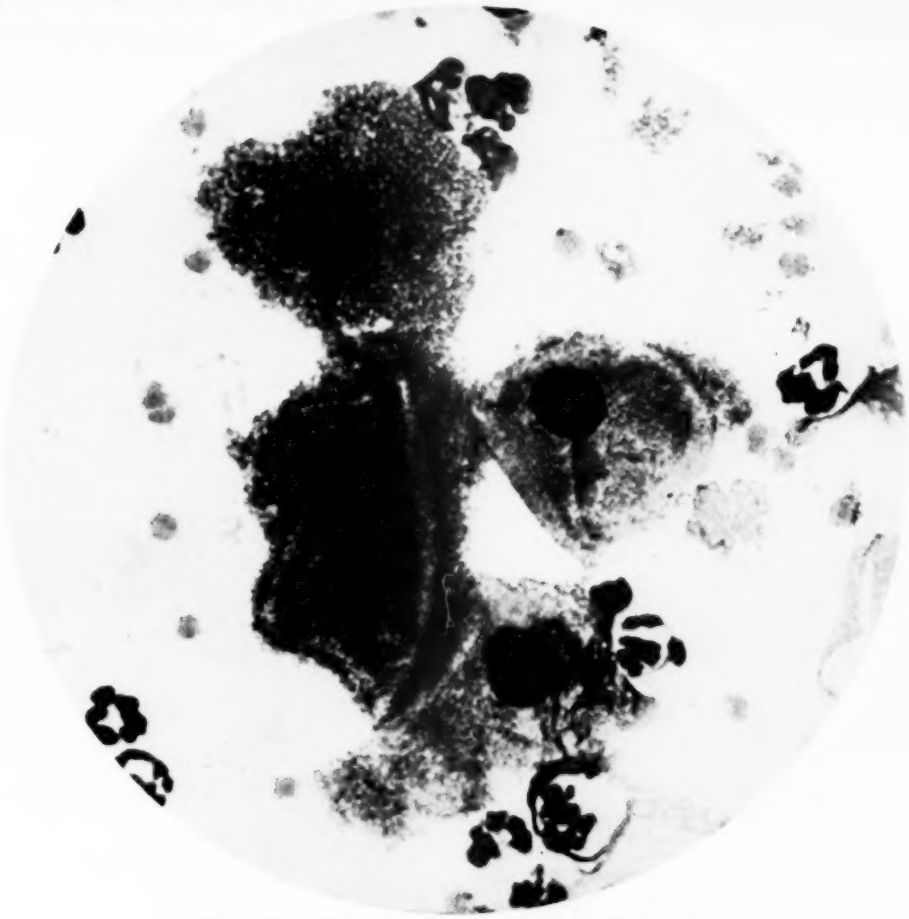

FIG. B. SHEEP. CONJUNCTIVAL SCRAPING.
Masses of *Rickettsia conjunctivæ* in cells and lying free (cells probably having broken up). Note the neutrophiles associated with the early stages of specific ophthalmia. × 1,000.

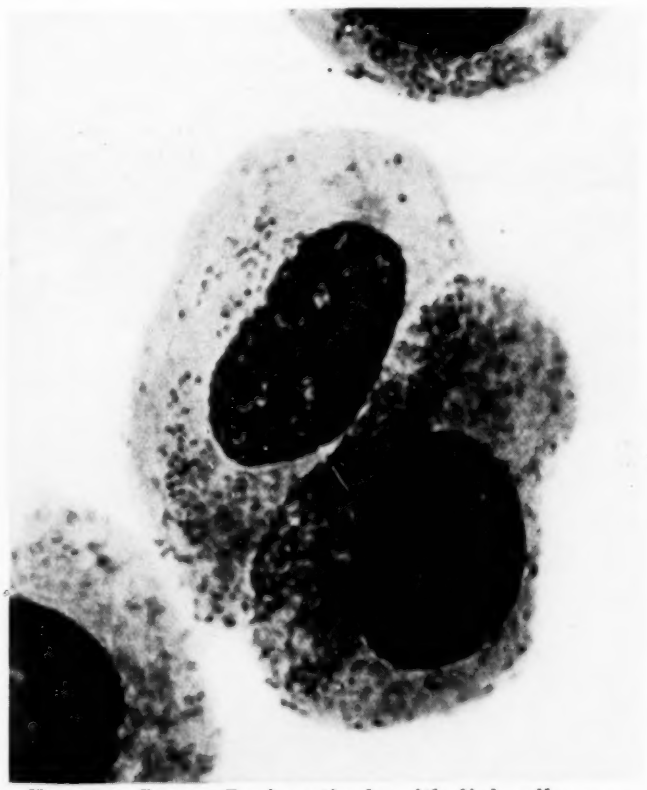

FIG. F. CALF. Conjunctival epithelial cells, containing Rickettsia masses. × 1,700.

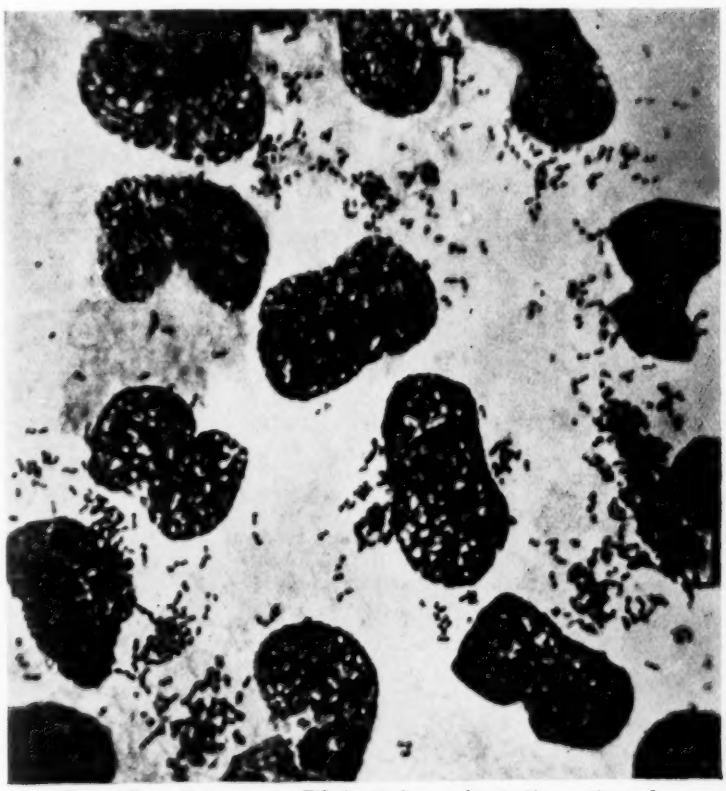

FIG. G. RABBIT. *Rickettsia orientalis.* Streak preparation, stained Giemsa, from endothelial layer of Descemet's membrane on fifth day of infection. × 1,200.—*Ex. Japanese Jnl. Exp. Med.* Vol. 9, No. 2. March, 1931.

the Government itself. That is a danger we want to remember. It is far better that it should be in the hands of the county authorities than that it should be directed from Whitehall.'

"An opponent of the report declared that the appointment would cost the county £11,000 a year. It was not correct to say, as had been stated, that the farmers of Cheshire were unanimously in favour of the proposal.

"Mrs. Bromley Davenport, who remarked that she was speaking on behalf of the women and children of the County, said she must implore the Council to adopt the proposal. All their maternity and child welfare work was going to be thrown away unless they had a pure milk supply.

"After a long discussion, the report was adopted by 35 votes to 12."

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FUTURE OF HORSE TRANSPORT

Mr. Thomas Forshaw, presiding at the annual luncheon held in connection with the Shire Horse Show, referred to the continued success of the event. The shows of the last three years, he said, had been practically identical in the number of entries, which meant that the society was not losing ground. Similarly the Stud Book entries had been maintained. The number of heavy stallions licensed under the Horse Breeding Act during 1932 showed that there was an increase of 108 stallions licensed, of which 92 were Shires. There was a big demand for Shires, and there were not enough good horses even for agricultural work. The introduction of the wheat quota would mean that a greater amount of land would be broken up, and there were not enough horses to supply such a demand.

The Shire horse was greatly favoured for work in the cities and towns. A walk through London would reveal that the majority of the draught horses in use were descended from the Shire strain. Out of every 1,000 horses working in London, 950 were descended from the Shire breed. With the wheat quota and the proposals of the Salter Report, it was possible that there would be a very big demand for heavy horses. The recommendations in the report, of course, were not for the benefit of the horse, but for the railways. The horse, however, would undoubtedly benefit.

The increase of the commercial classes at the show was an indication of the large demand for draught horses for use in the streets of cities and towns. He had been informed that one of the four great railway companies contemplated a big increase in their horse transport. It was being found that horse transport was far more economical than motor transport, and he suggested that municipal and other authorities should make greater use of the horse if they wished to keep expenses down.

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

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CONTAGIOUS IRIDO-CYCLITIS IN SHEEP

To the Editor of The Veterinary Record.

Sir,—I have been prompted to write this letter by an article in your issue of November 26th, 1932, and by a desire to see more attention paid to the eye diseases of the domestic animals. These diseases cause indirectly enormous financial losses, but investigators continue to pass them by. They are not fatal—hence few care.

For the last five years I have been interested in these afflictions, and I shall endeavour to present here my findings and beliefs. Specific ophthalmia of cattle was on the agenda of the last Pan-African Agricultural and Veterinary Conference held in Pretoria in August, 1929. I presented a report to the Conference, but it was mainly a resumé of our knowledge up to that time. The meagre literature was reviewed briefly, outbreaks in Flanders in 1781 and near Paris in 1782 and in Nebraska in 1889, among others, being mentioned. The disease is rampant in Southern Africa and occurs practically all over the world, including the British Isles. Almost every investigator has failed to transmit it. Those who have succeeded were probably extraordinarily fortunate. A. S. Canham failed repeatedly in the Union; so has the writer. Periodic ophthalmia of horses would seem not to occur in South Africa.

A disease in sheep similar to that in cattle is widespread in the Union, where, it is estimated, five million cases are encountered each year. The same disease is very prevalent in Australia, according to Sir Arnold Theiler, and is a pest also in New Zealand, the United States and Europe. In 1930 I found for the first time that the disease in sheep was infectious, the incubation period being two to four days. The disease is transmitted easily by instilling the lachrymal secretion from cases in which symptoms have just developed into the conjunctival sacs of normal eyes. G. Edgar, of the Glenfield Veterinary Laboratory, New South Wales, obtained essentially the same results. He showed that the causative agent did not pass the ordinary filters.

Towards the end of 1930, I found that I could invariably demonstrate a Rickettsia-like organism in the conjunctival epithelium during the early stages of the disease. The parasite (if such it is) has been named provisionally *Rickettsia conjunctivæ*. A description of it appears in an article, "A Rickettsia-like Organism in the Conjunctiva of Sheep," in the Seventeenth Report of the Director of Veterinary Services and Animal Industry, Union of South Africa, 1931. Illustrations A to C will give a good idea of what it is like. [See accompanying art plates.—Ed. *V.R.*]

In the same report is another article on "An Unknown Intracellular Organism of the Conjunctival Epithelium of Sheep." This is at present thought to be distinct from *R. conjunctivæ* and harmless. Illustration D shows it. What appears to be the same organism has recently been observed in cattle.

It has been mentioned already that we have failed to transmit ophthalmia of cattle, though everybody is convinced it is very infectious and the incubation period appears to be about three days. Very recently a Rickettsia-like organism (as yet unnamed and not described) has been found here too. We have transmitted the parasite, the incubation period being roughly three days, but no apparent lesions developed. Are we possibly dealing here with a disease due to Rickettsia, which is extremely difficult to transmit artificially? In the case of sheep, transmission is easy, but it must be emphasised that the two parasites show decided points of difference in morphology and in their arrangement in the cells. An excellent idea of this parasite will be got from illustrations E and F. It is too early yet to be dogmatic, but I feel that the so-called specific or infectious ophthalmias of cattle and sheep will yet be proved to be due to Rickettsias, whatever these may be. It is possible that periodic

ophthalmia of horses will join the group, at the cattle ophthalmia end.

I would like readers to compare these illustrations with those of *Rickettsia orientalis* in the Tsutsu-gamushi number of the *Japanese Journal of Experimental Medicine* Vol. IX, No. 2, of March, 1931. The similarity is most striking.* Concerning the mode of transmission in nature nothing is known, but it is possible that ordinary flies will eventually be incriminated. No specific remedy is available. It is the general experience in the Union that any collyrium will give good results, but only for a time. When one drug fails another must be tried. The natives here ocasionally burn rings round affected eyes with hot irons, the idea being to produce a local hyperæmia. Sheep seldom lose their eyes altogether, but on some farms numerous cattle become permanently blind. In my opinion, the nature of the secondary bacterial infection plays an important rôle in the determination of the prognosis.

I must apologise for the length of this letter, but if it stimulates research work on the lines I have indicated it will have served a purpose.

Yours faithfully
J. D. W. A. Coles.

Onderstepoort Veterinary Laboratories,
Transvaal.
January 1st, 1933.

[* There is, as Mr. Coles states, a similarity in the microscopic appearance of *Rickettsia orientalis* and *Rickettsia conjunctivæ* and we have pleasure in reproducing a copy of one of the microphotographs which appeared in the Japanese article referred to by Mr. Coles (See Fig. G).—Ed., *V.R.*]

* * * * *

TUBERCULIN TESTING

To the Editor of the Veterinary Record.

Sir,—In your issue of February 11th, you publish a letter from Mr. R. H. Smythe in which he draws attention to the discrepancies in the results of the double intradermal tuberculin test which have been reported by several practitioners. It is perhaps inevitable that occasional differences of opinion should arise in the interpretation of a test of this nature which is dependent upon the estimation of the amount of diffuseness in a swelling. May I point out, once again, that "the doctrine that diffuseness indicates a reaction," which is called into question by Mr. Wilson and Mr. Smith (*V.R.*, February 4th, 1933), was adopted as the result of a series of tests on tuberculous and non-tuberculous animals the accuracy of which was confirmed by complete *post-mortem* examinations: in many instances the amount of swelling in the positive animals merited the classification of "slightly diffuse" and was discernible only by careful palpation. A continuation of this investigation during the past seven years has only served to strengthen this point of view. I have in mind more particularly a recent experience in which the application of the double intradermal test to two animals believed to be free from tuberculous infection gave rise to swellings exactly comparable to those which were observed in cows 6 and 11 at the Folkestone Congress (mentioned by Mr. Wilson), *i.e.*, the final measurements were less than double the initial measurements while the swellings were regarded as very slightly diffuse. At the *post-mortem* examination, each animal presented tuberculous lesions of moderate extent, the nature of which was confirmed by guinea-pig inoculation.

Mr. Wilson (*loc. cit*) has inferred that as the result of his experiences he now considers that in the absence of heat and pain, diffuseness in a swelling does not necessarily constitute a positive reaction. May I venture to point out that neither he nor Mr. Smith has produced concrete evidence, in the form of complete *post-mortem* details, that their particular interpretations of the test are the true indications of the presence or absence of tuberculous infection. Whilst I fully appreciate the difficulty which these cases occasionally present, I am convinced, as the result of personal experience, that the classification of slightly diffuse swellings as negative reactions will result in the retention in so-called clean herds, of a proportion of tuberculous animals.

I am in complete agreement with Mr. Smythe and Mr. Wilson that the simultaneous application of concentrated broth medium as a control has proved most helpful in many instances. There seem to exist slight differences in the degree of response of individual animals to both tuberculin and broth, and a comparison of the two swellings is often of assistance in doubtful cases. The cause of the non-specific swelling as exemplified by the reaction to concentrated glycerine broth, is of considerable interest and practical importance. Until recently, I subscribed to the opinion of Mr. Smythe that the glycerine content of tuberculin and concentrated broth was the determining factor in the non-specific response. We have lately undertaken a series of experiments in cattle with the various constituents of tuberculin and have been surprised to find that glycerine *per se* plays but a small part in the skin reaction. The causes of these skin reactions are probably complex but we hope to publish these experiments in full in a future publication.

I am, Sir,
Yours faithfully,
Ronald E. Glover.

Institute of Animal Pathology,
Field Laboratories,
Milton Road,
Cambridge.

February 18th, 1933.

. . . . . .

To the Editor of the Veterinary Record.

Sir,—The importance of obtaining a reliable test for the discovery of those bovines affected with tuberculosis cannot be over-estimated by the Veterinary Profession.

I feel convinced that the time is not far distant when energetic steps will be taken to reduce the incidence of tuberculosis in our herds, and I fear that if the general practitioner does not make a greater effort to become familiar with the technique to be adopted, and so render all diagnoses uniform, a lucrative and recurring branch of private practice will pass entirely into the hands of whole-time officers.

The subcutaneous test has been a great aid to diagnosis for many years, and under certain conditions is still considered reliable. It, however, has had its "*vagaries*"—an animal passing the test with one practitioner, and at short or varying periods afterwards, failing to pass the test of another veterinary surgeon, and *vice versa*.

Many of these cases were attributed to errors of technique or diagnosis on the part of the veterinary surgeons concerned. After 40 years experience, and very careful observation, I am convinced that a number of errors in diagnosis were due to the use of unreliable tuberculins, and since the advent of the double intradermal

test, I have satisfied myself that there is a time when a proportion of bovines which have repeatedly passed the subcutaneous test, will fail to react, even if they have become affected with tuberculosis. I have satisfied myself upon this point, by retesting, both subcutaneously and double intradermally, such animals repeatedly, at six-month intervals—in some cases for as long as three years, and in only one case did one of these cows react again to the subcutaneous test; but at every test *I obtained a reaction to the double intradermal.*

In the majority of cases, I was able to verify the efficacy of the intradermal test by *post-mortem,* in which lesions of tuberculosis were found in every case, some very extensive.

It is said by some that bovines suffering with an extensive, old affection will cease to react to the subcutaneous test. I may say I have not found this to apply to the intradermal test. I have no hesitation in saying that the *double intradermal* test is as near 100 per cent. efficient as we can hope for, when we have succeeded in CORRECTLY interpreting what some gentlemen are pleased to call its vagaries.

Without a doubt the test, and the CORRECT reading of its reaction, is at times most difficult, especially so to the novice, the personal element entering so largely into its technique.

The *approved method* of applying the test should be uniformly adopted by all veterinary surgeons practising it—making sure that they are thoroughly conversant with the "vagaries" of some reactions before attempting to use the method for diagnostic purposes.

To attain this knowledge, two methods are open to the aspirant: first, to follow a large number of those case presenting to the observer "an indefinite reaction" (either on account of size, or nature of the swelling) to the slaughter-house, where a very thorough *post-mortem* should be conducted; second, to obtain the necessary information from one who has obtained his knowledge in the manner stated above.

I do wish to impress upon the profession that this knowledge cannot be imparted by demonstrations, as have already been held at Divisional meetings. It is absolutely necessary to do the thing in a number of animals *oneself, under supervision.*

My reason for being so emphatic on these points is that I am quite unable to convey in writing an intelligible description of what IS and what is NOT a reaction, nor have I yet seen anyone else who has succeeded in giving an intelligible and working description in writing.

I state definitely that the character of the swelling is the diagnostic symptom, absolutely irrespective of size.

I may add that it is of the utmost importance that only a standardised tuberculin, or one of known potency, should be used, and that a condition of instruments and skin as nearly aseptic as possible should be obtained.

In the issue of the VETERINARY RECORD for February 4th were two charts, one of an intradermal test, the other of a subcutaneous test. The former (intradermal) illustrates clearly what I have stated above as to the unsatisfactory nomenclature, etc., in use at present. *From this chart* alone, Nos. Ex. 71, G9570, 207, 210, and 208 are the only animals that could by any stretch of imagination be said to be reactors. No. 74 is especially interesting, as I have never experienced a case where the measurement has decreased 5mm. after the second injection of tuberculin, in a reactor.

The subcutaneous chart is also very interesting on account of the very slight variation in the temperatures of the whole herd (except of course the reactor).

Yours faithfully,

Swindon. J. C. COLEMAN.

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LETHAL CHAMBERS

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—As one who has to do a great deal of lethalling of dogs and cats, I feel that Lieut.-Colonel Rainey's letter in your last issue should not pass unchallenged.

In the first place, he writes about "instantaneous death." No information, however, is given as to how that is to be achieved. Failing that, prussic acid is advocated. Rapid as this is in its effect, I consider that the agony and distress produced in the seconds before death comes prohibit its use. If I were given to the habit of using picturesque phrases (like "death oven") I might here make some allusion to "strangulation by an invisible hand." As I regard true humanitarianism to be founded on reason rather than emotional appeal, I refrain.

Shooting, in its various forms, if properly carried out, produces instantaneous unconsciousness, not death. There is, however, too wide a margin of error about it for my taste. It is an instantaneous process, and sooner or later a wearied hand may deviate that fraction which will cause untold agony before the error can be rectified.

If I may speak frankly without offence, it has often been impressed upon me (possibly, of course, falsely) that an opinion seems to prevail very generally throughout our profession, that the procedure requiring the most "skill and resolution" must be the most correct one. To use a simile, the proper way to enter the house is through the attic window! Part, at least, of the thread of argument through this letter I am discussing seems a manifestation of this opinion.

Further, nearly all dogs require some restraint before they can be effectively shot. In the case of powerful and vicious specimens this restraint is hard to apply gently. In this connection I would like to remind Lieut.-Colonel Rainey that he has written that no method should be used for killing adult dogs (and why particularly adult dogs?) which excites violently the instinct for self-preservation," etc., etc.

I have had two cases of coal gas poisoning in dogs quite recently. In both cases the dogs slept near the gas cooker, which had developed a leak during the night; in both cases the dogs concerned were perfectly free to roam all over the house, and in both the dogs remained in their beds until unconscious. I should like to place these cases on record beside the statement that dogs can apprehend death through the nose. Having had a general anæsthetic myself, I feel I could write a good deal about the distressfulness of this, but am not going to waste your space over it. Those who have been through it, know.

I have carefully investigated this question, and in the light of my present knowledge consider that the only way to realise Lieut.-Colonel Rainey's ideal ("a wagging tail one moment," etc.) is to go to where the animal lives, catch him asleep or feeding, and then blow the place up with high explosive. Short of that, I consider that quietly placing a dog or cat, *fasting,* in a lethal chamber, as soon as it arrives in the strange premises, and slowly administering carbon monoxide, is the most humane method of lethalling to date.

XUM

To conclude, I want to put on record that I deeply deplore that Lieut.-Colonel Rainey, whose work we all know and admire, has on this occasion thought it necessary to rush into print in the lay press before at least consulting the bulk of professional opinion in this matter.

As a result of this letter, I may find myself alone in my opinions. I shall be surprised if that is so, because I have earnestly considered this matter. And I have a good deal of this very distasteful work to do, and can assure you that I am not just theorising.

Yours faithfully,

K. J. S. Dowland, M.R.C.V.S.

43, Friars Lane,
Lincoln.

February 19th, 1933.

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HÆMATURIA VESICALIS (BOVINE)

To the Editor of the Veterinary Record.

Sir,—"F. T. H." in the current *Veterinary Record*, says that it would be interesting to know to what extent the above condition is met with in Britain.

This condition, of course, has no connection with piroplasmosis in bovines, which causes the ordinary "red-water," but is clinically different in that pure blood, or rather blood clots, are passed with the urine, especially at the end phase of micturition. The condition is chronic and terminates in death after a long-continued and gradual emaciation. (I watched one case for over three years.) The only symptoms are the passing of *blood*, as distinct from blood or colouring matter in the urine and the gradual emaciation.

I meet with this condition fairly frequently in my forest (Forest of Dean) district, where the grazing is on uncultivated land (there are over 20,000 acres of this forest). This land has *never* been cultivated and *may* approximate the conditions met with in the Mount Gambier district of Australia, barring, of course, climate. The condition, unlike that in Australia, is not confined to certain farms but it *is* confined to my forest area.

The *post-mortem* appearances are similar to those described by the authors: "There are vascular changes in the form of new vessel formation, congestion and hæmorrhage—and—papillomatous new growths. These latter bleed almost continuously.

I meet with some three or four cases a year. Some time ago I sent three bladders to a research institute, but, as yet, have heard nothing of their findings. The disease does not appear to be infectious.

J. W. Hall Masheter.

Ruddle House,
Newnham-on-Severn,
Gloucestershire.

February 15th, 1933.

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DINNER TO SIR FREDERICK HOBDAY

To the Editor of the Veterinary Record.

Sir,—I would like an opportunity to acknowledge the many letters from members and to thank those who have signified their wish to be present at the congratulatory dinner to Sir Frederick Hobday, to be held at the Mayfair Hotel, on March 24th.

Arrangements are being made to provide a very excellent and unusual programme of entertainment, and everything points to the occasion being a memorable and enjoyable one.

The presence of ladies will be welcomed.

The cost of the tickets will not exceed 15s. 6d., the actual figure being dependent upon the number of applications received. It is hoped that these will be made promptly.

Yours faithfully,

H. Kirk.

The Editor acknowledges, with thanks, the receipt of the following:—

Communication from Captain W. L. Little (Reading). Report of the Annual Meeting of the Scottish Metropolitan Division, N.V.M.A., from Mr. J. N. Ritchie, Hon. Secretary.

Diseases of Animals Acts, 1894 to 1927

SUMMARY OF RETURNS

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 1st to 15th Feb., 1933	23	27	6	769	13	24	32	29	9
Corresponding period in									
1932	24	31	—	—	15	41	21	91	27
1931	21	27	—	—	6	9	20	58	37
1930	27	27	—	—	20	32	45	124	24
Total 1st January to 15th February, 1933	62	73	36	3,484	35	64	111	94	16
Corresponding period in									
1932	62	82	1	67	42	78	77	280	97
1931	67	75	2	255	31	58	100	167	59
1930	70	74	—	—	62	99	182	329	112